SEPTEMBER 5, 1960

# PAPER TRADE JOURNAL

**MARKET PULP PICTURE . . .**

Pulp salesmen relate their own surprising opinions. Look for this PTJ exclusive on page 24

**CAUSTIC COOKERS . . .**

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**AND, HOW TO . . .**

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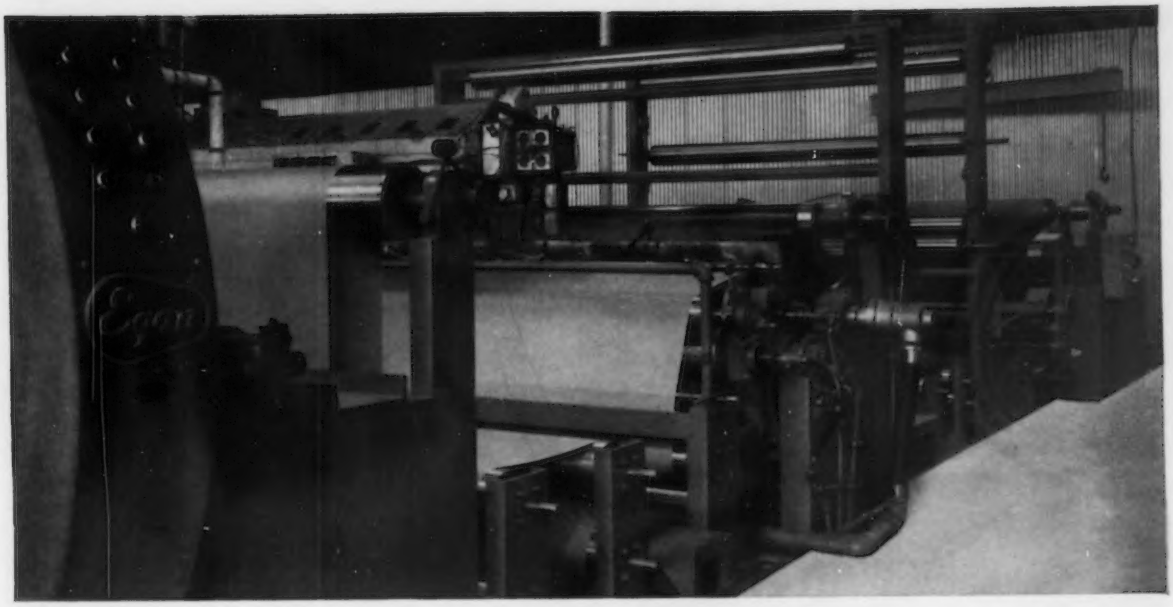

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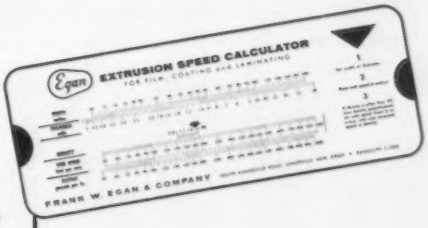


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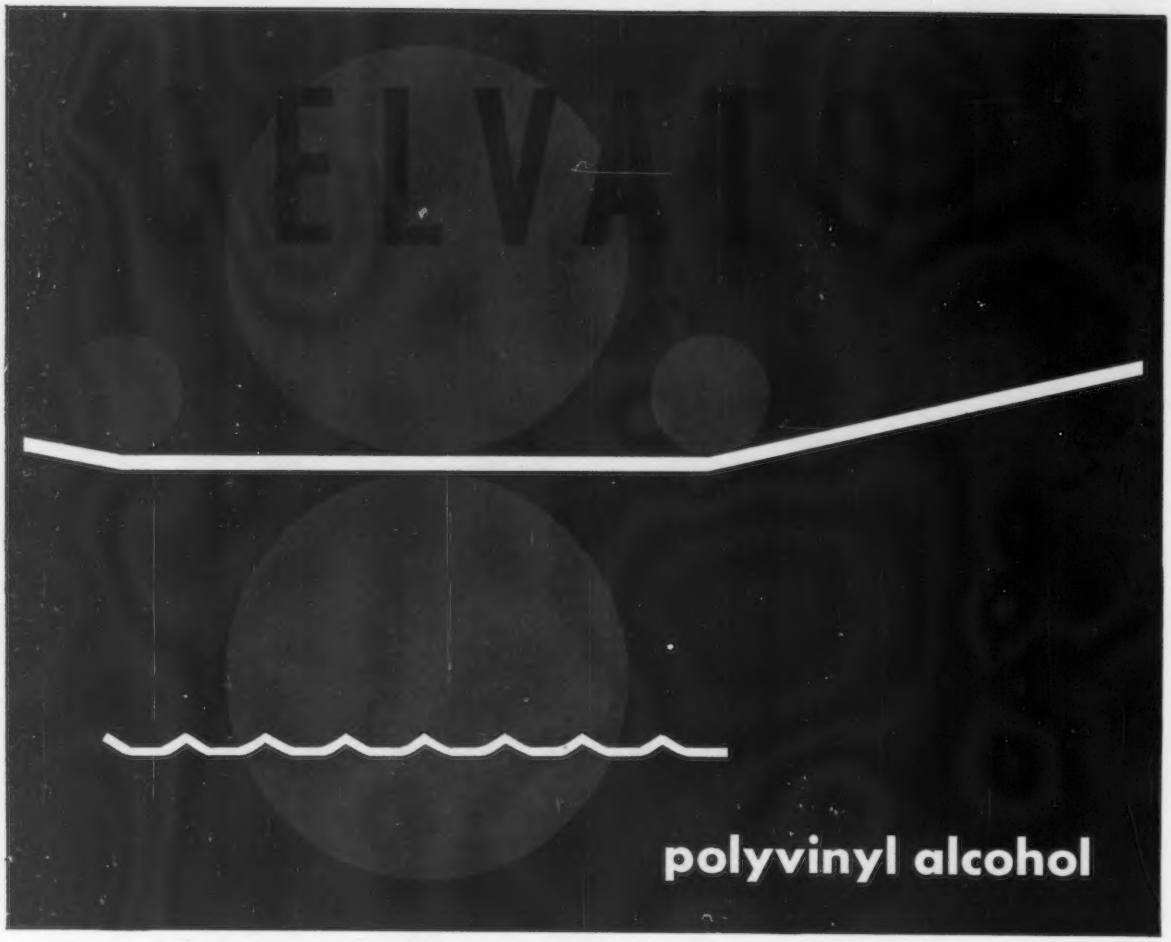


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# PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

Week of September 5, 1960—Vol. 144, No. 36



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Published by Lockwood Trade Journal Co., Inc., at 34 N. Crystal St., East Stroudsburg, Pa. Second class postage paid at East Stroudsburg, Pa. Printed in U.S.A.


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Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1893. Paper established Sept. 21, 1910, combined with Paper Trade Journal February 19, 1926.


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## REMEMBER THESE DATES

**September 6-9, CPPA Summer Meeting, Technical Section, Banff Springs Hotel, Banff, Alberta, Canada.**

**September 18-21, NPTA Semi-Annual Convention, Conrad Hilton Hotel, Chicago, Ill.**

**October 5-7, TAPPI Deinking Conference, Conway Hotel, Appleton, Wis.**

**October 17-21, National Safety Congress, Conrad Hilton Hotel, Chicago.**


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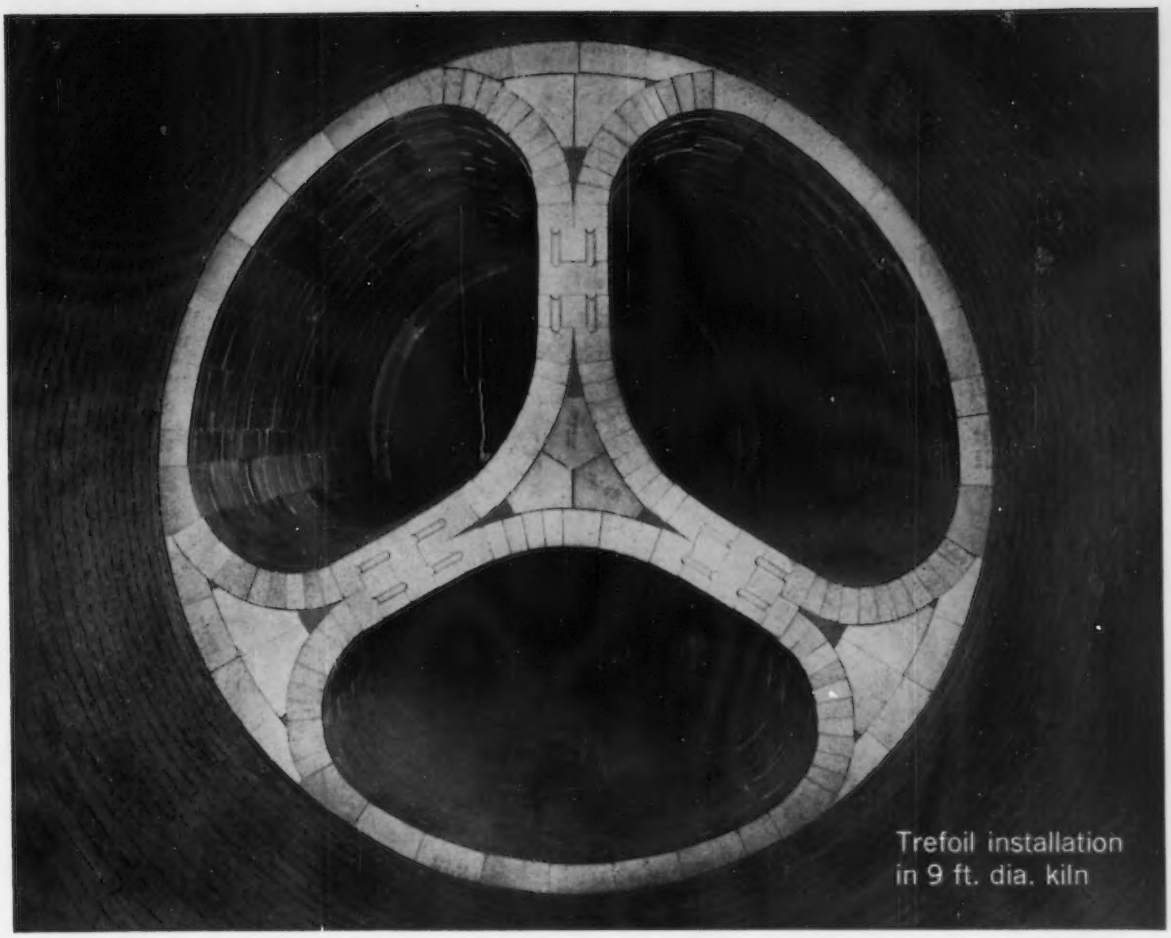

Trefoil installation
in 9 ft. dia. kiln

# Refractory Heat Exchangers increase rotary kiln efficiency

## Harbison-Walker TREFOIL design provides important benefits

This construction built with refractories especially suited for the purpose is showing exceedingly gratifying economies in rotary limestone and lime sludge kilns. Its use is the means of imparting sensible heat to the charge, even to the degree of partial calcination in some installations.

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Net results from the use of the trefoil are fuel savings and increased production in kilns which are not greatly overloaded beyond rated capacities.

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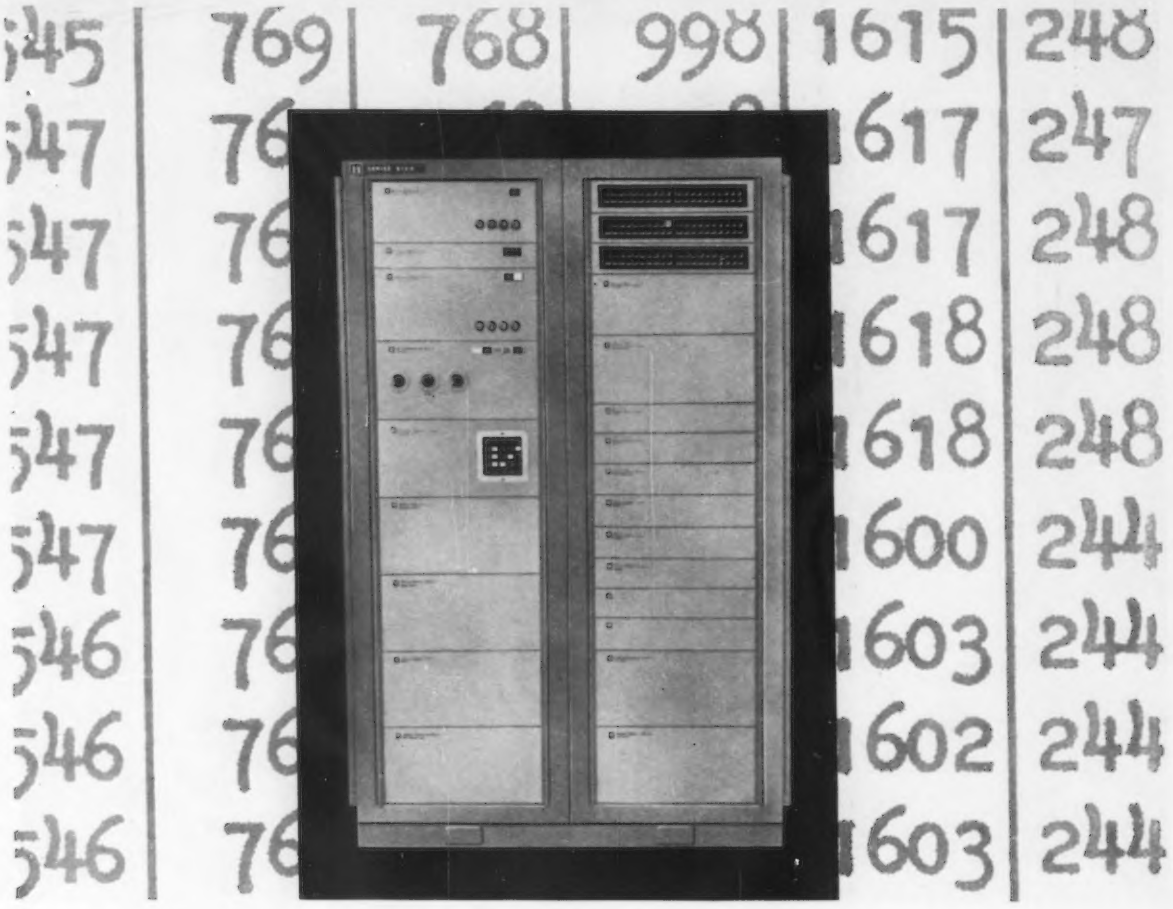

The Series 3120 cubicle occupies less than nine square feet of floor space and normally requires no special air conditioning.

## USE THIS ALL-PURPOSE LOGGER-SCANNER AS THE "WATCHDOG" OF YOUR ENTIRE PROCESS

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The scanner monitors seven points per second. When it detects an off-normal point, it sounds an alarm, lights a point-identification light, and prints the time, point number, and off-normal value on a separate alarm record.

With the Honeywell logger-scanner, you get complete process data while it is still meaningful, so that all variables can be easily correlated for best possible process performance. Get complete details from your nearby Honeywell field engineer. Call him today . . . he's as near as your phone.

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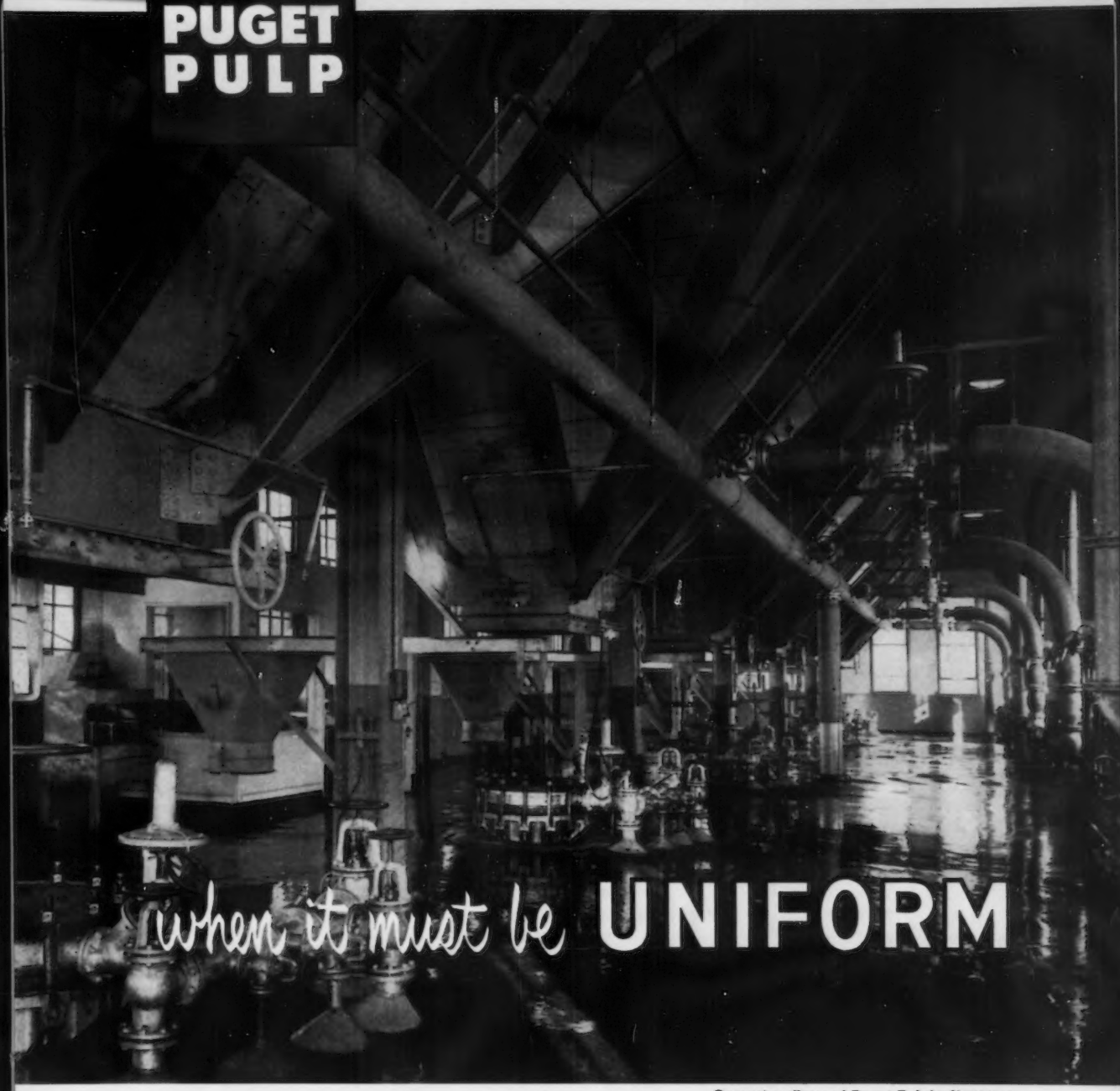


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softwood sulphite

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- No. 64 — Development Studies on Last-Stage $H_2O_2$ Bleaching of Alkaline Pulps.
- No. 65 — Peroxide Bleaching of Southern Pulps.
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# Trends

**Paper and Board Ratio Off Moderately**

Paper mill operating rate for July was 81% (July 1959—84%) and the board mill rate was 77% (July 1959—83%). Paper mill rate for the first three weeks of August was close to 90% and the board mills ran at 93%.

**Mixed Outlook Reported for Market Pulp**

An intensive study of the market pulp outlook from the producers and sales agents' point of view is reported in this issue under "Outlook for Market Pulp Here and Abroad" beginning on page 24. The wide and varied nature of the findings do not permit summary here. Further investigations on market pulp from other points of view, such as the consumer, will result later in reports to our readers.

**Fine and Wrapping Sales Off in July**

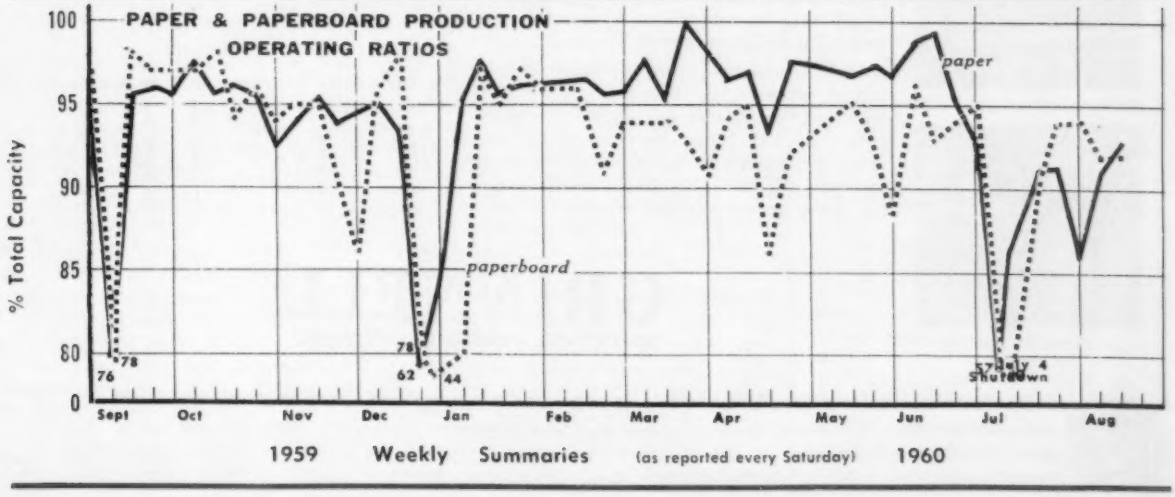
Merchant sales of fine papers in July were down about 3% from July of last year. Sales were 13% below June, compared with a normal June to July decrease of 7.5%, according to NPTA. Wrapping paper sales by merchants for July were off 9% from the same period last year. Sales of wrappings in July were 8% below June compared with a normal drop of 1%.

**Less Board for Cigarette Boxes**

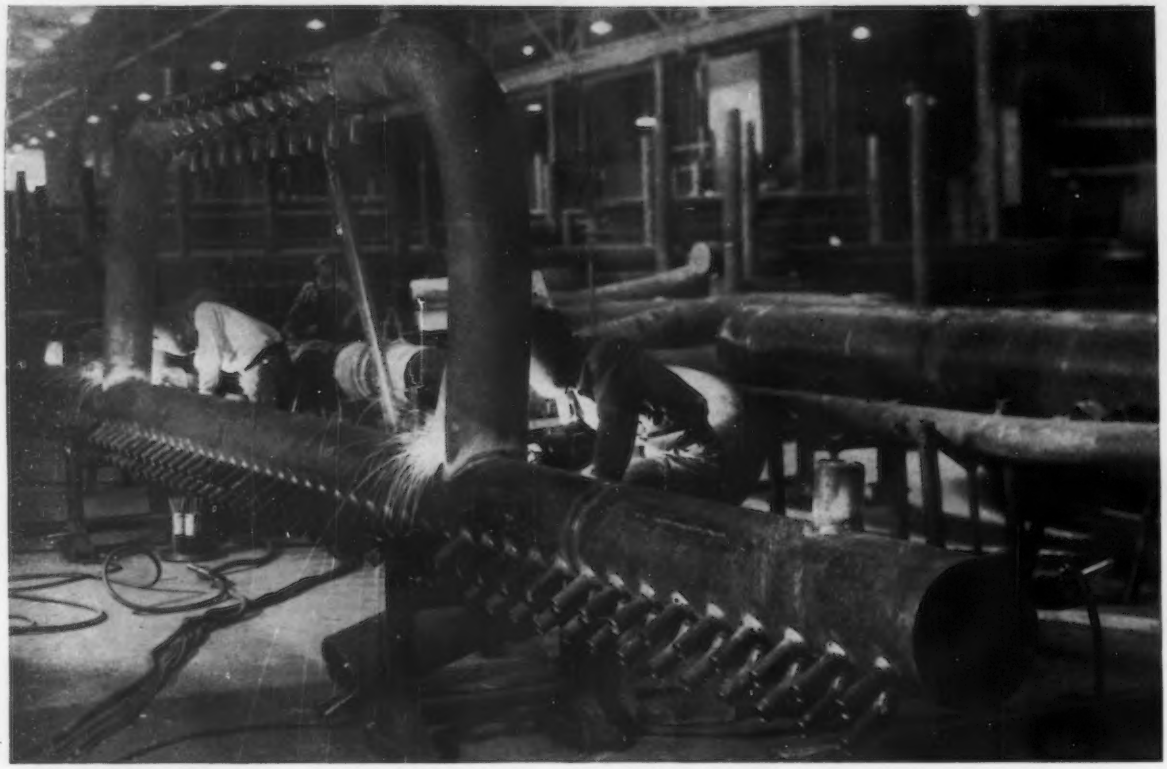
A strong trend away from crush-proof or flip-top cigarette boxes will have a definite effect on demand for light weight bleached board. Our tobacco industry expert states that the tobacco companies used the crush-proof box as a sales gimmick which they are now generally abandoning, even for the premium filter tip cigarettes.

**Justice Dept. Eyes Paper Industry**

Justice Dept. action in challenging acquisition by West Virginia Pulp & Paper Co. of controlling interest in U.S. Envelope is an unfortunate sign of a growing attitude in Washington. The action, said a Justice Dept. official, stems from a study of a trend towards concentration in the paper industry. Ours is still one of the least concentrated of major industries. Look at automobiles, oil, rubber, etc. The action is all the more remarkable as this is West Virginia's first venture in envelopes.



# EXACTLY as you want it . . .



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## Shop-fabricated piping by Grinnell

With Grinnell shop-fabricated piping — cutting, fitting, welding, and assembly "on location" is reduced to an absolute minimum. That can be important. For when these operations are performed under the less-than-ideal conditions existing in the field, there is always the possibility of less-than-perfect results. For example, errors in cutting or fitting can occur — or welds can contain slight imperfections, which may be difficult to detect and correct with field equipment.

In Grinnell shops, on the other hand, whole sections of complex piping are assembled *exactly* as you want it — with every critical point checked with the latest equipment and by the most modern methods. When these sections arrive on site, they go up fast and *right.*

With Grinnell shop-fabrication too, there are no unforeseen costs. Included in the price (which is determined in advance) are such items of expense as: interpretive engineering, shop sketches and planning, procurement of materials, power services, expendable tools and supplies. There are no charges for waste material.

Consider the quality of the finished job, and final cost. Then consult Grinnell on *your* next piping installation.

*To Engineering Societies and Departments:* A 30-minute color sound film showing the quality and economy of Grinnell Shop-Fabrication of all classes of piping is available without charge. Contact your local Grinnell Supply Sales Office, or write to Grinnell Company, Inc. 216 West Exchange St., Providence, R. I.

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PJT PAPER TRADE JOURNAL

WEEK OF SEPTEMBER 5, 1960

## Union Bag-Camp Cancels Bid for Crossett Co.

Union Bag-Camp announced last week that it had abandoned its $156 million project to acquire the Crossett Co. of which the Crosset Paper Mills in Arkansas is a division.

Union Bag-Camp said it had been unable to arrange satisfactory financing for the deal because of a recent anti-trust charge by the Federal Trade Commission. The FTC has challenged the 1956 merger of Union Bag & Paper Corp. and Camp Mfg. Co. and later acquisitions of other paper products manufacturers.

Union Bag-Camp said in a statement released last Tuesday that while it "is confident that this merger, and the subsequent acquisitions, were not in violation of the anti-trust laws and that its position will ultimately be sustained, the proceedings have produced an element of uncertainty affecting the possibility of arranging financing on terms satisfactory to Union Bag-Camp."

Meanwhile, P. F. Watzek, president of Crossett, informed that holders of a majority of the company's stock had decided to withdraw their stock from sale and to continue to operate the company as in the past.

Mr. Watzek said the move by the principal stockholders had, in effect, withdrawn the company from sale. "You should therefore understand that not only is the Union Bag-Camp matter closed" he stated, "but the entire subject of sale is also closed."

The agreement between Union Bag and Crossett's leading stockholders had called for Union Bag to make a purchase offer by November 1 for the 2,279,540 outstanding shares of Crossett at $68.50 a share.

## Mead Continues Research on Liquid Waste

The Mead research project on the treatment of liquid waste from a semi-chemical pulping process at the School of Public Health, University of North Carolina, will be continued, it was announced by H. E. Whitaker, chairman of the Mead board. The project, initiated June 1, 1958, was established with the objective of discovering additional approaches to the solution of the color pollution problem.

Dr. James C. Lamb, III, assoc. prof. of Sanitary Engineering at the school, has been the directr and principal investigator of the project. Dr. Lamb, in reporting on the project before the National Council on Stream Improvement, said, "The problem will be solved eventually, by us or by others, and we are trying very hard to find the solution. We are taking the fundamental approach of studying the basic character of the color compounds for the purpose of finding new information which could lead to a new and effective treatment method."

The continuation of the Mead project is based on the progress made by the University during the past two years and on Mead's continuing desire to solve the Tuckaseegee River pollution problem in North Carolina.

### Cont.-Diamond Fibre To Move Ind. Plant

Continental-Diamond Fibre Corp. will move operations of its Valparaiso, Ind., plant to its principal factory at Newark, Del., it was announced.

William L. Rodich, president, and several other officials of the company were in Valparaiso recently discussing arrangements for the move which should be completed by next summer.

A spokesman for the Newark plant disclosed that machinery from the Valparaiso plant already is being transferred. The Indiana plant will be closed and its operations absorbed by the Newark facility which has undergone considerable expansion in the past year.

Continental-Diamond, a division of the Budd Corp., manufactures mica sheets and silicone rubber coated glass fabrics used in the electrical industry. It also has plants in Bridgeport, Pa., and Spartansburg, N. C.

### Sonoco Acquires Richmond Plant of Dixie Paper Tube

Sonoco Products Co. has acquired the equipment and facilities of Dixie Paper Tube Co. of Richmond, Va. This was announced by James L. Coker, president of Sonoco, and Benjamin P. Alsop, president of Dixie Paper Tube Co.

Eugene W. Mitchell, superintendent of the Dixie plant, continues in that capacity.

For the present the plant will continue to operate in the same location, producing paper tubes principally for Reynolds Metals Co. which are used for Reynolds Wrap aluminum foil and Reynolon. It is expected that additional equipment will be added at a later date in order to supply paper tubes in a full range of sizes.

Sunoco Products Co. now operates plants in ten states and also in Canada and Mexico with affiliated companies in England and Australia.

### Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending August 20, 1960, at 92.7 per cent compared with 91.2 per cent revised, for the preceding week. The ratio was 96.7 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending August 20, 1960, at 92 per cent, compared with 92 per cent for the preceding week and 95 per cent for the corresponding week a year ago.

*(Detailed Statistics on page 55)*

## Japanese and Russians Weigh Paper Mill Deal

Three giant Mitsubishi industrial concerns have recently signed provisional agreements with the Soviet Union to export paper mill facilities valued at $27,777,778.

A spokesman of the Mitsubishi Nippon Heavy Industry said that working out of agreements probably would require another three or four months.

The agreements were based on an earlier understanding between the Meiwa Sangyo Co., an affiliate of Mitsubishi Trading Co., and the all-Soviet Machinery and Technology Import Corp.

The deal, if it goes through, will be the largest Japanese machinery export to Russia.

## Canadian Pulp and Board Continues Ahead

Canadian woodpulp production and exports continued ahead in July and the first seven months. Output in July was 908,503 tons, up from 871,995 tons last year. To the end of the month, production totalled 6,423,548 tons as against 6,049,403 tons in the same period last year.

Domestic pulp consumption was also ahead in July owing chiefly to the increased production of newsprint. Canadian use for the month was 697,928 tons as against 683,764 tons a year ago and totalled 4,925,838 tons for the seven month period as compared with 4,642,429 tons in 1959. Exports to the end of July totalled 1,488,280 tons, up from 1,401,210 tons last year. July exports were 210,356 tons as against 205,697 tons in 1959.

Canadian paperboard production continued ahead in the first seven months this year despite a decrease in July output when there was one less working day than in July last year. Output for the month was 75,166 tons, off from 83,471 tons a year ago. Production in the first seven months was up, however, at 561,932 tons as compared with 538,554 tons in the same period last year.

Paperboard exports continued to gain in July at 5,988 tons, as against 4,173 tons in 1959. Exports to the end of July totalled 56,581 tons, well ahead of the 38,106 tons shipped abroad in the first seven months last year.

Domestic paperboard shipments were 500,062 tons to the end of July, up slightly from 499,013 tons a year ago. July shipments were 69,152 tons this year and 74,565 tons in 1959.

# PJT ASSOCIATION NEWS

**Participating in Forest Biology Conference were: R. J. Seidl (Simpson Timber Co.), general conference chairman; D. D. Stevenson (Buckeye Cellulose), chairman of Forest Biology Committee: J. R. Lienz (Union Bag-Camp Corp.), TAPPI's prexy; L. R. Thiesmeyer (Pulp & Paper Research Inst. of Canada), one of the principal speakers.**

## Forest Biologists Look at Better Fibers

Forest biologists and pulp and paper technologists from around the world met at Seattle's New Washington Hotel, Seattle, August 24-26, to discuss ways of producing "Better Fibers from Better Trees through Forest Biology." This conference, sponsored by the Technical Association of the Pulp and Paper Industry, proposed ways and means of improving the yield and quality of wood fibers for pulp and paper production.

More than 65 participants came from Finland, Scotland, Australia, the Philippine Islands, and across the United States and Canada to discuss their latest research findings. Three speakers were heard at the opening general session on Wednesday. TAPPI President, J. R. Lientz, Union Bag-Camp Paper Corp., Savannah, Ga., introduced the conference theme. Principal addresses by Dr. J. L. McCarthy, University of Washington, and by Dr. L. R. Thiesmayer, Pulp and Paper Research Institute of Canada, Montreal, Quebec, followed.

At technical sessions on Thursday and Friday, 15 speakers discussed various aspects of "Evaluation of Wood Properties," "Variation in Wood Properties," and "Influence of Wood and Fiber Properties on Pulp and Paper Characteristics."

The meeting closed Saturday with a field trip to give Conference participants a look at research facilities of the Industrial Forestry Association at the Col. W. B. Greeley Forest Nursery, Nisqually, and of the Weyerhauser Forest Research Center at Centralia. One of the Northwest's first forest tree seed orchards established by Perpetual Forests, Inc., near Grand Mound, Wash., was also visited.

R. J. Seidl of Simpson Timber Co., Seattle, was general chairman of the Conference. J. W. Duffield of the Col. W. B. Greeley Forest Nursery, Nisqually, was chairman of the Technical Program.

Serving as the moderators at the various sessions were; R. W. Wellwood, University of British Columbia; H. E. Dadswell, C. S. I. R. O., Melbourne Australia; M. D. McKimmy, Oregon State College; and J. M. McEwen, Weyerhaeuser Co.; and D. D. Stevenson, Buckeye Cellulose Corp.

## Va.-Carolina TAPPI to Meet in Roanoke Rapids

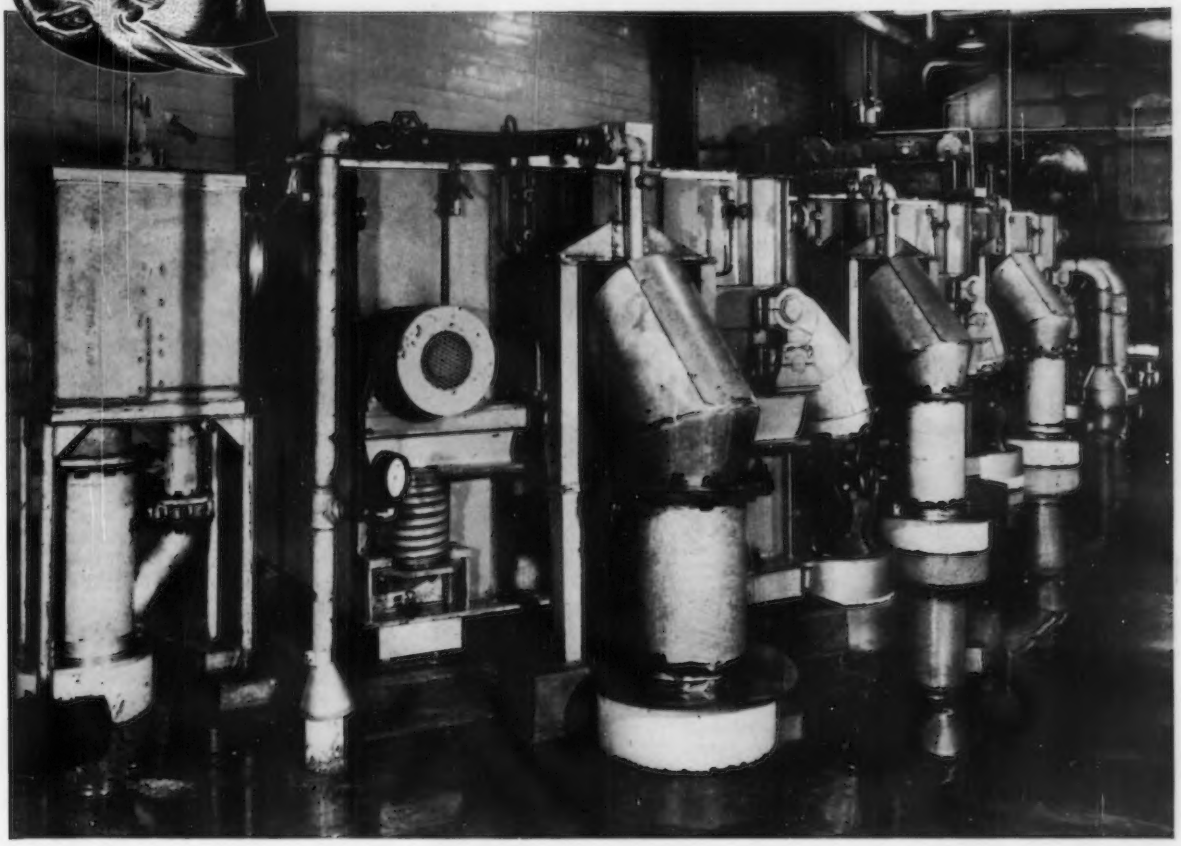
W. H. Warren, personnel manager of Albemarle Paper Mfg. Co. announced the following technical program for the Virginia-Carolina Section TAPPI meeting in Roanoke Rapids, N. C., Sept. 30-Oct. 1, 1960:

**Friday evening—papers.**

"Aluminum Foil Laminations," Yale M. Brandt, Reynolds Metals Co.;

"Kraft Paper Moisture Studies," J. W. Gladstone, Halifax Paper Co.;

# A whale of a lot of fine screening* in small space at low cost . . .



These three Bird Vibrotor Screens with fine slotted plates are handling first quality bleached kraft of high consistency at the rate of 240 tons per day. A bank of flat screens would occupy ten times as much space. Savings in piping, pumping and power are correspondingly great. Cost of maintaining these all-stainless steel screens is exceedingly low.

***For example,** through .012" slots:

| | | |
|---|---|---|
| Unbleached sulphite | at 1.5% — | 55 tpd |
| Bleached sulphite | at 1.6% — | 68 tpd |
| Unbleached sulphate | at 1.6% — | 58 tpd |
| Bleached sulphate | at 1.9% — | 80+tpd |
| Unbleached hardwood | at 1.5% — | 100+tpd |
| Deink | at 1.9% — | 100+tpd |

**NEW BULLETIN** / *on the Vibrotor Screen is just off the press. May we mail you a copy?*

**BIRD MACHINE COMPANY**

**SOUTH WALPOLE, MASS.**

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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

"Halifax Paper Co. Operations," Halifax management.

Saturday morning there will be a mill tour of Halifax Paper Co.

The registration will take place at the Chockoyotte Country Club in Roanoke Rapids.

## Shipping Containers Topic Of West Coast Meeting

Shipping containers will be the subject of four technical papers to be presented by a group of the nation's leading authorities at a special meeting in October for West Coast packaging men.

Round table discussions of specific questions will be another feature of this timely meeting, which is scheduled for 9:30 a.m., Thursday, October 6, at the Rodger Young auditorium, Los Angeles. This will be the first of a series of West Coast regional meetings to be sponsored by the Packaging Institute.

The October 6 meeting is being planned under the chairmanship of Allyn C. Beardsell, director of the New Products Div., The Mead Corp., and also a director of the Packaging Institute. Areas to be covered by the speakers include corrugated and solid fibreboard containers, multiwall and baler bags, partitioning and cushioning, and what is common and uncommon about common carrier rules (interpretation of Rule 41, etc.).

Mr. Beardsell has announced that the morning program will be devoted to presentation of technical papers by four speakers representing various phases of interest in shipping containers. The luncheon program will feature a talk on the marketing aspects of the subject. The afternoon will consist of round table discussions of specific topics by the four speakers, offering the audience the opportunity to submit written questions for consideration. Names of the principal speakers are to be announced. Additional details are available from C. Paul Bolton at Carnation Research Laboratories, 8015 Van Nuys Blvd., Van Nuys, Calif., or from the Packaging Institute, 342 Madison Ave., New York 17, N. Y.

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You'll get exceptionally low "first cost"
You'll use minimum power
You'll need less maintenance
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Kalamazoo "Side Hill" Washer
These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and savealls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
Laboratory size units are available for experimental purposes in determining the proper angle and screen mesh.
Write today for information on capacities and cost estimates.
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## 10th Corrugated Containers Conf. Program Announced

The 10th Corrugated Containers Conference, sponsored jointly by the Technical Ass'n. of the Pulp and Paper Industry, New York, and the Technical Section of the Canadian Pulp and Paper Ass'n., Montreal, will be held October 10 through 13, at the Royal York Hotel, Toronto, Ontario. This is the first such conference to be held in Canada.

R. W. Buttery, Bathurst Containers, Ltd., Montreal, is the general conference chairman.

The conference program will be as follows:

**TUESDAY, OCTOBER 11**

*Meeting Modern Trends for Improved Printing on Corrugated Board*—Moderator: D. M. Davis, Hercules Box Co., Columbus, Ohio

"Printing Press Rollers Designed for Corrugated Printing" by G. A. Browne, Permaflex Industries, Ltd., Toronto, Ont., Canada.

"Printing Inks for Corrugated Board" by R. W. Reid, General Printing Ink Co., Cincinnati, Ohio.

"Printing Dies for Corrugated Board" by H. Devon, Jas. A. Matthews & Co., Pittsburgh, Pa.

A moving picture will be shown demonstrating the proper adjustments of printing press rollers, printing inks, and printing dies and their use to obtain top quality and to reduce costs.

Panel discussion on the morning and afternoon theme "Meeting Modern Trends for Improved Printing on Corrugated Board."

**WEDNESDAY, OCTOBER 12**

*New Developments in Packaging*—Moderator: H. J. Ostrowski, Hinde & Dauch Ltd., Toronto, Ont.

"Corrugated Containers Under Re-

frigeration" by A. C. Beardsell, The Mead Corp., Cincinnati, Ohio.

"Bulk Packaging" by T. C. Kitchell, Union Bag-Camp Paper Corp., New York, N. Y.

"Evaluation of Packages by Laboratory and Field Tests" by J. G. Turk and R. Maxson, Glass Container Manufacturers Institute, Inc.

"An Underwater Beam Strength Test for Waxed Corrugated Board" by D. S. Brown, C. J. Kremer and A. C. Smith, Jr., The Atlantic Refining Co., Philadelphia, Pa.

*General*—Moderator: H. S. Inman, Gair Paper Products Division of Continental Can Co. of Canada Limited, London, Ontario

"The Bathurst Method for Determination of Corrugator Starch Consumption" by J. G. Reynolds, Bathurst Power and Paper Co. Ltd., Montreal, Que.

"Variable Speed Drives for Box Plant Machinery" by J. W. Landers, Reliance Electric and Engineering, Cleveland, Ohio.

Hotel reservations for the conference should be addressed directly to: 10th Corrugated Containers Conference, Royal York Hotel, Toronto, Ont., Canada.

## Nat'l Conference on Water Pollution Called

At the request of the President and of the Secretary of Health, Education, and Welfare, a National Conference on Water Pollution will be held in Washington, D. C., December 12-14, 1960.

The purpose of the Conference will be to assess the problem of water pollution to determine its effect upon national welfare and to set realistic goals for its control. In this way the Conference hopes to create a national body of opinion and documented fact upon which more vigorous effort may be made on the problem. It is expected that well over 1,000 professional and technical people as well as representatives of national organization will attend.

The steering committee under the chairmanship of Frank A. Butrico, executive secretary of the Conference, has approved a meeting format calling for plenary sessions on its first and third days and four concurrent panel sessions on the second day. Subjects of the four panel meetings were tentatively set as "Water Pollution and Our Changing Times," "Meeting the Growing Competition for Water," "Keeping Water Clean," and "Research and Training." Further information may be obtained from Mr. Butrico, or from Robert S. Hutchings, information officer.

# PJT NEWS OF CONVERTERS

## Dennison Expands Gift-Wrap Plant

Dennison Manufacturing Co. announced that it has signed a 10-year lease with Maynard Industries covering expansion of its plant in Maynard. The Maynard plant produces gift wrapping papers and accessories for everyday and Christmas use.

The expansion will give Dennison a total of over 310,000 square feet in Maynard and will make the facility one of the largest devoted exclusively to gift wrapping manufacture.

## New Hoerner Box Plant Nearing Completion

Limited operations at the Hoerner Boxes, Inc., plant now nearing completion in Danville, Ill., are expected to begin about Oct. 1.

Robert E. Wilson, plant manager, will arrive in Danville shortly.

Other officials scheduled to join the Danville plant are: L. C. Whetstone, office manager; A. G. Lovingfoss, plant superintendent; and Walter C. Guth, salesman for the company.

Construction of the $280,000, 40,000 square-feet corrugated sheet plant was started early this year. Finished shipping containers will be produced. Danville is the site of the 13th plant owned and operated by the Hoerner organization, whose home offices are in Keokuk, Iowa.

## Brown Now G.M. of O-I's Multiwall Bag

Thomas W. Brown, Jr. general manager of the Multiwall Bag Division of Owens-Illinois Glass Co. for three years, has been appointed a vice president of the division.

Together with the Mill Division and the Paper Products Division, the Multiwall Bag Division comprises O-I's forest products operations, headed by Hugh C. Laughlin, O-I executive vice president.

Mr. Brown will continue to act as general manager of the Multiwall Bag Division. Before moving to Toledo in 1957, he served four years as southern sales manager for the O-I division.

## Randolph Box Appoints Plant Manager

Edward F. Cornellissens has been appointed plant manager of the Randolph Paper Box Co., division of Albermarle Paper Manufacturing Co., Richmond, Va. He is a native of St. Paul, Minn. and has 30 years experience in paper box manufacturing. He comes to Randolph from Waldorf Paper Products Co.

## Cont. Corp. Appoints Gen. Mgr. of Paperboard Mills

The appointment of William B. Whiting as division general manager responsible for Container Corp. of America's Philadelphia and Chattanooga, Tenn., paperboard mills has been announced by Frederick S. Crysler, vice president in charge of all the company's paperboard mills.

Mr. Crysler also announced the appointment of William Erskine to succeed Mr. Whiting as general manager of the Philadelphia mill. Both Mr. Whiting and Mr. Erskine will continue to headquarter at Philadelphia.

Mr. Whiting joined Container Corp. in 1946 at Philadelphia and, in 1948, was made a packaging engineer. He served as assistant sales manager and sales manager and, in 1954, was named general manager of the Philadelphia mill.

Mr. Erskine joined the company in 1947 at the Philadelphia mill. He was named a packaging engineer in 1950 and became sales manager of the mill in 1954.

The appointment of Frederick C. Meyer as general manager of Container Corp. of America's folding carton plant, Los Angeles, Calif., was announced by J. W. Williams, division general manager.

Formerly sales manager at Container Corp.'s Santa Clara, Calif., carton plant, Mr. Meyer joined the company in 1939. He was associated with the Research Laboratory and later worked in the Planning, Estimating and Sales Service Departments. In 1952 he was assigned to the company's New York Sales Office, becoming assistant sales manager there in 1954. In 1957 he was named sales manager at Santa Clara, his latest position.

# PAPER PEOPLE

J. C. Strong

## Allied Paper Appoints Strong as Sales Rep.

The Allied Paper Corp. has announced the appointment of J. C. Strong as sales representative. Mr. Strong was formerly employed by the International Paper Co., from 1932 to the present time. Mr. Strong will have his headquarters in Chicago.

## Ruberoid Names Export Manager

The Ruberoid Co. announces the appointment of Herman Frohman as export manager, a newly-created post. Mr. Frohman was formerly vice president of Owens-Corning Fiberglas International, S. A., New York City, and operations manager of the International Division of Owens-Corning.

## St. Lawrence Appoints Wyllie

St. Lawrence Corp., Ltd., announces the appointment of James Gow Wyllie as vice-president, finance. Mr. Wyllie comes to this newly created position from Canada Steamship Lines, Ltd., where he was vice-president and comptroller. He has also been assistant general manager and a director of Bowaters Newfoundland Pulp and Paper Mills, Ltd., as well as secretary-treasurer of Bowater Corp. of North America, Ltd. Before going to Bowaters, Mr. Wyllie was assistant to the vice-president and treasurer, Canadian Industries, Ltd., and had previously been assistant internal auditor of Howard Smith Paper Mills, Ltd. Mr. Wyllie will be located at St. Lawrence Corp.'s Montreal head office.

## Keasbey & Mattison Elects V.P. of Materials

The board of directors of Keasbey & Mattison, Ambler, Pa., has elected Ralph L. Lanz to the executive post of vice president-materials and a member of the board of directors, effective September 1. Mr. Lanz will be in charge of K&M's research and development, planning and inventory, and purchasing departments. He has been general manager-materials since December 1, 1959.

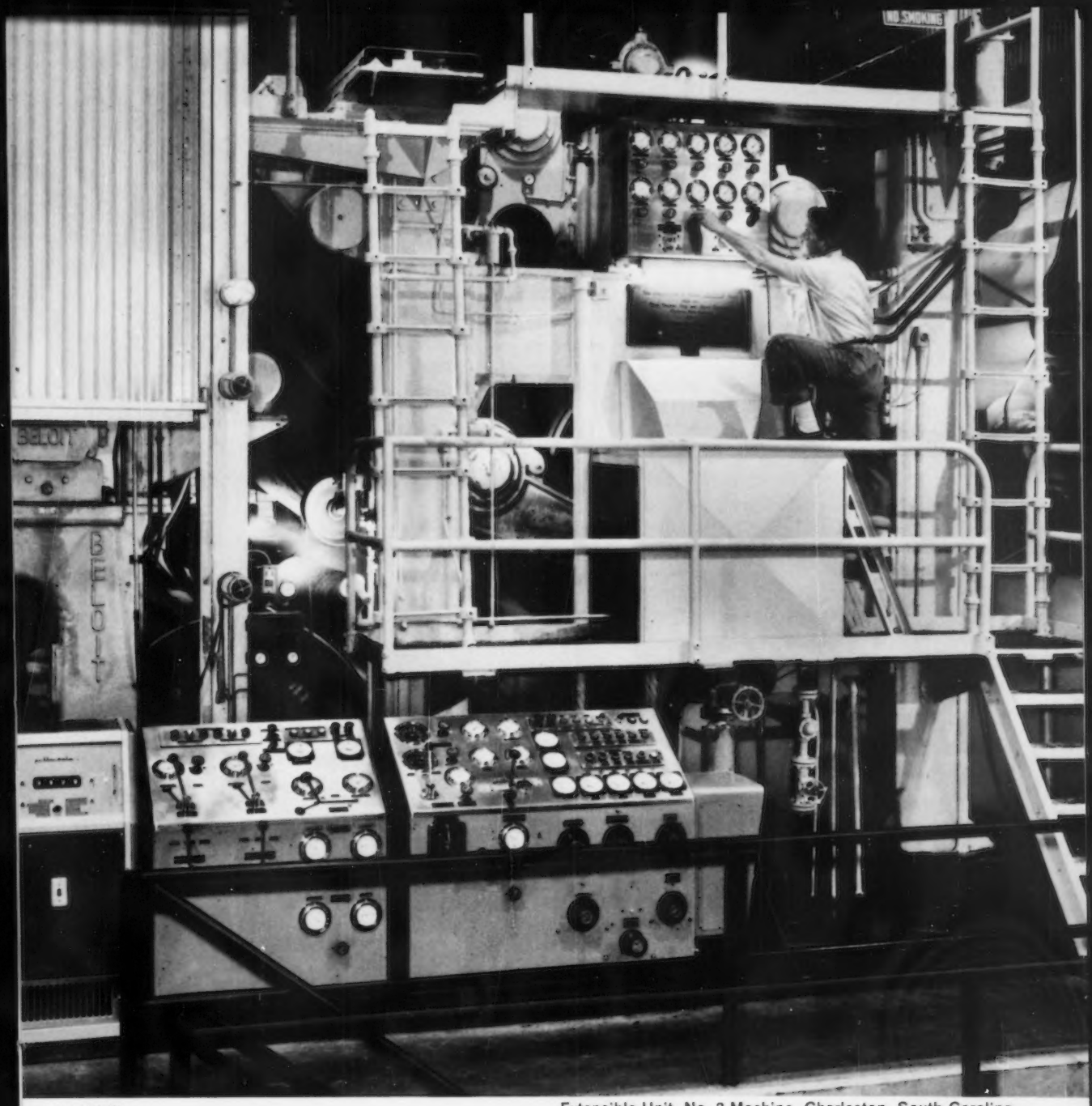
Mr. Lanz obtained a B.S. degree in chemical engineering from Drexel Institute of Technology in 1935, and joined Keasbey & Mattison in 1936. He has held the positions of quality control manager and planning and inventory department manager since 1951. Keasbey & Mattison Co. is a manufacturer of asbestos, paper and asbestos mill board.

M. L. LOOBY was named manager, Retail Sales, effective Sept. 1, of Charmin Distributing Co. Charmin is a subsidiary of Proctor & Gamble Co., set up to handle the sales of P & G's paper products. Mr. Looby was previously manager, Southern Region, Case Food Sales Dept., of P & G.

## K-C Picks Overseas Marketing Assistant

Herman Kruger, consumer products territory manager in Toledo, Ohio, for Kimberly-Clark Corp., will join its international division Sept. 6 as staff assistant-marketing.

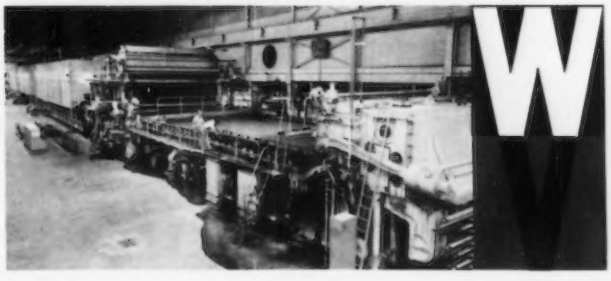
In his new post, Mr. Kruger will be responsible for providing marketing services to K-C overseas subsidiaries, associates, sales representatives and distributors. He joined the company in 1951 and has been assigned to the Toledo area since 1958. In his new job, Mr. Kruger's headquarters will be at Neenah, Wis.




S. R. CHRISTENSEN

Extensible Unit, No. 3 Machine, Charleston, South Carolina

# West Virginia Pulp and Paper Company, Kraft Division

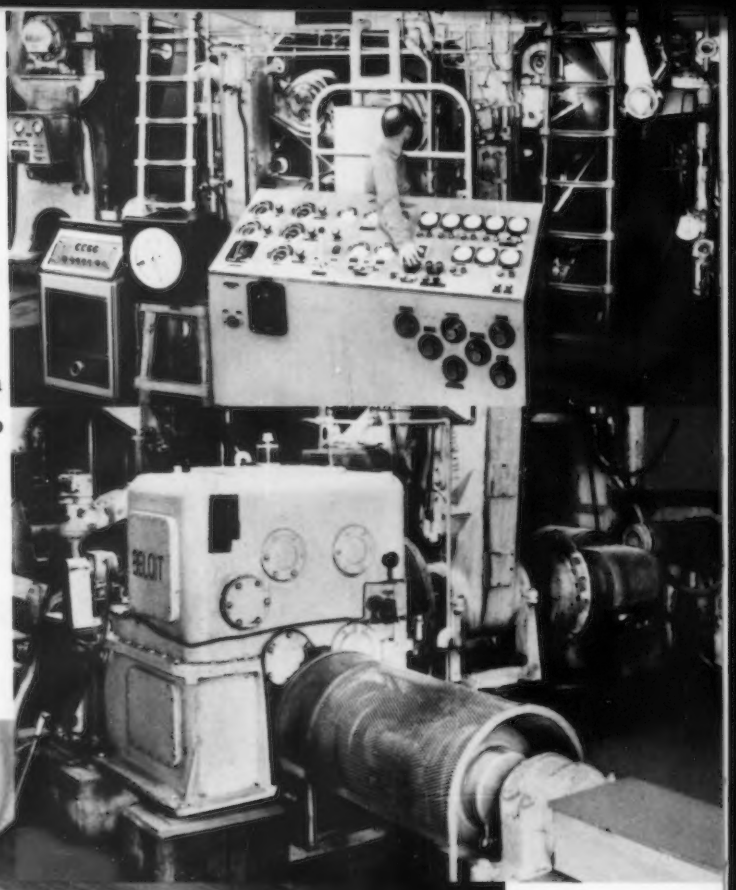


Above is seen the first unit installed for the commercial production of CLUPAK* extensible papers—a process pioneered by West Virginia. Today, 12 of these units are in production, and this new stronger paper is meeting with wide acceptance. Machine at left is one of two at Charleston manufacturing West Virginia's brand-named Kraftsman CLUPAK paper. Please turn page.

*Clupak, Inc.'s trade-mark for extensible paper manufactured under its authority and satisfying its specifications.

## Two machines at Charleston manufacture Kraftsman Clupak

The patented CLUPAK process, hailed as one of the important developments in modern papermaking, brings a new "dimension" to paper: controlled stress and strain properties. To date, production has been in the kraft grades, although principles of manufacture and characteristics are applicable to all grades. Clupak, Inc., has appointed Beloit to build extensible units under patents owned by Clupak, Inc. **(a)** Extensible unit, number 2 machine. This is the second production unit installed for the manufacture of CLUPAK papers. **(b)** Drive side number 3 machine. Extensible unit is powered by a Beloit mechanical differential drive. **(c)** Detail of rubber blanket at guide roll position—automatic air guide is at opposite end of the roll. **(d)** Close-up of plaque mounted on extensible unit, number 3 machine.

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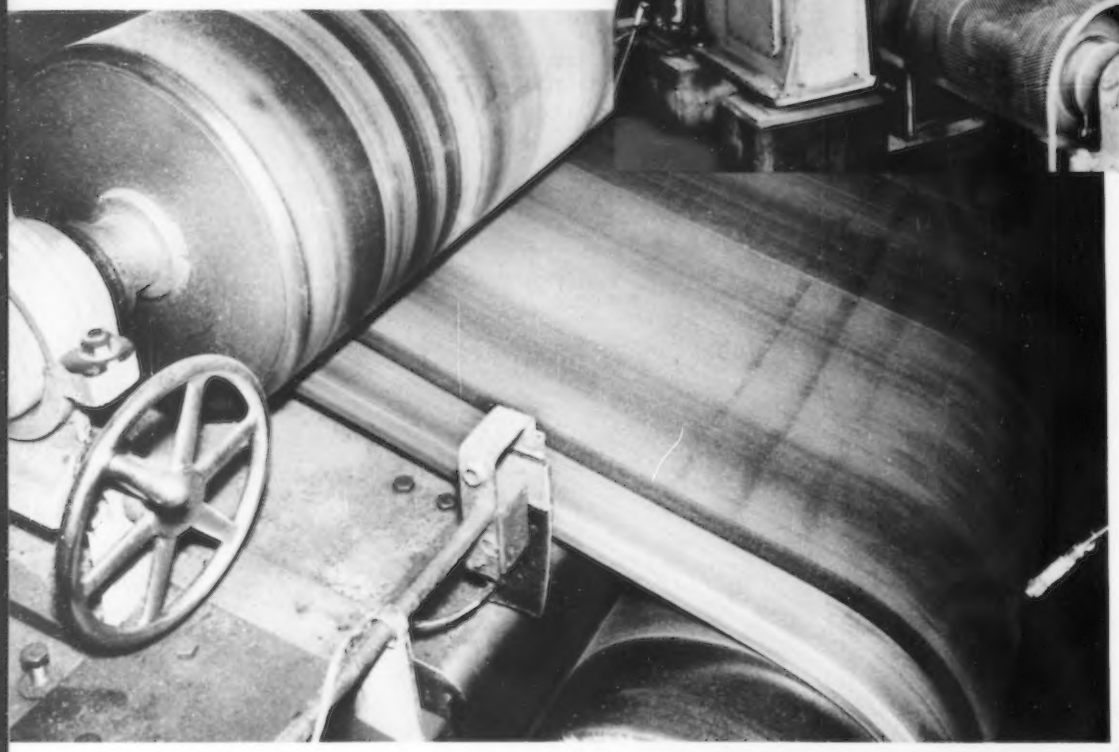

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*This insert lithographed on Westvaco's Pinnacle Offset.*

BELOIT IRON WORKS PAPER MACHINERY BELOIT, WIS., U.S.A.

**BELOIT**
**PAPER MACHINERY**

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## OBITUARIES

**Sidney L. Abramson,** 60, president of Central States Paper and Bag Co., died of cancer at Barnes Hospital, St. Louis, Mo., August 4. He had been president of the paper company since 1928 and helped to found the organization.

**George D. Burrows,** 85, of Little Falls, N. Y., a former resident of Syracuse, died yesterday in City Hospital, Little Falls, where he had been a patient for two weeks. Mr. Burrows was associated with the Burrows Paper Co.

**Charles H. Goodwin,** 37, assistant sales manager of Columbia Box Board Mills, Inc., of Chatham, N. Y., died August 13 at his home in Dedham, Mass. after a long illness.

Mr. Goodwin became associated with Kleene Fibre Corp., Manchester, N. H., a Columbia subsidiary, in December of 1951. With the closing of that plant, he joined the Columbia Box Board Mills in May 1952.

**Charles Holden Fuller,** 53, of Norwich, Conn., assistant manager and purchasing agent of the Federal Paper Board Co., Inc., Versailles, Conn., died July 30. For the past 35 years, Mr. Fuller had been employed with Federal in various capacities.

**Thomas A. Murch,** 66, who retired a year ago as superintendent of Mill 7 of the Crocker Burbank Co., died August 23 in the Burbank, Mass., hospital.

**Laurence F. Whittemore,** 66, New England industrialist, died of cancer in Concord Hospital, Pembroke, N. H., on August 10, after a long illness.

For ten years, until illness forced his retirement last June, Mr. Whittemore was president and later board chairman of the Brown Co., northern New England manufacturer.

**William J. Ziegenhardt,** 69, Hamilton, Ohio, resident and sports figure, a member of the sales department at the Champion Paper and Fibre Co. for 35 years, died Aug. 15.

Mr. Ziegenhardt had been in failing health for eight months and had entered the hospital two weeks ago for surgery.


# 2 ways
# Gates high capacity V-Belt Drives contribute to industry profits

**ON IN-PLANT EQUIPMENT, Gates Super HC V-Belt Drives lower maintenance costs—as on this pump at Scott Paper Company's Detroit plant. The pump was formerly driven by a special belt, but 6 of these belts failed in about 3 months. In comparison, a Super HC Drive has been operating for the past year with NO down time and NO replacement cost.**

**ON EQUIPMENT FOR SALE, Super HC High Capacity V-Belts produce savings all down the line—as on these sand pumps being readied for shipment from Denver Equipment Company's plant. With Super HC, sheave dimensions can be reduced 30% to 50%, overall space up to 50%, drive weight by 20%, and drive cost by as much as 20%, compared to previous drives.**

A little more than a year ago Gates introduced a new high capacity V-belt—a slimmer, tougher, more flexible V-belt with far greater capacity to transmit horsepower than conventional belts.

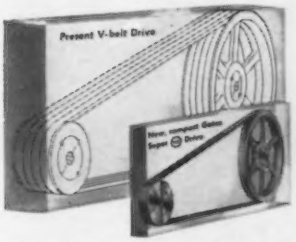
Because this revolutionary V-belt permits narrower sheaves, fewer belts, and closer center distances, hundreds of plants across the country have found Gates Super HC V-Belt Drives contribute to profits in 2 ways: through marked savings in drive costs on production machines *within* the plant and on powered equipment manufactured *for sale*.

Gates V-Belt Distributors and Field Engineers are listed in the Yellow Pages in all major industrial centers. Ask your distributor for the handbook, *The Modern Way to Design V-Belt Drives.* TPA 544

**The Gates Rubber Company,** Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

Gates

The Mark of Specialized Research




same hp capacity in smaller "package"

GATES SUPER HC HIGH CAPACITY V-BELT DRIVES

# AT YOUR SERVICE

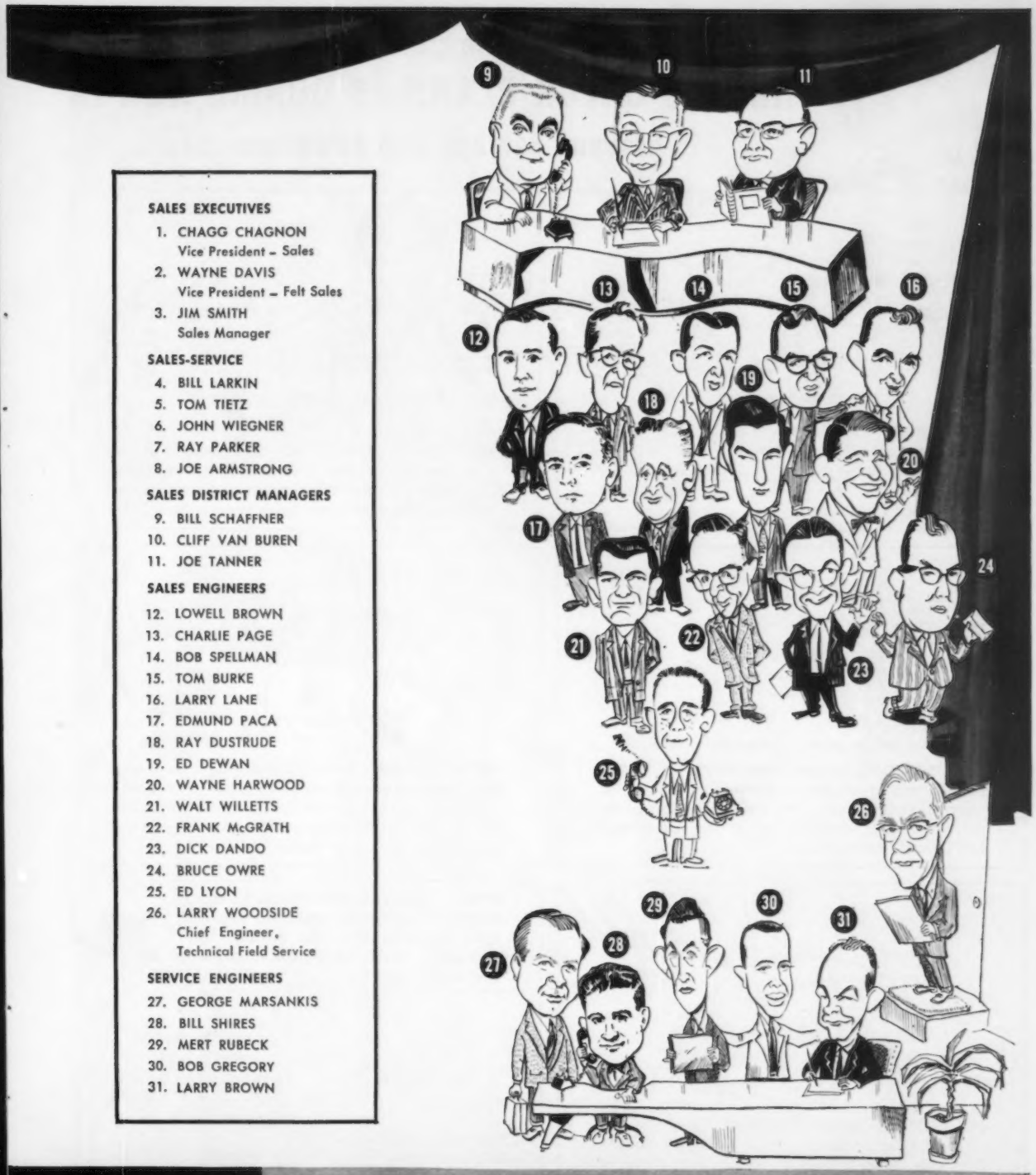
Outstanding product and fine service are two major objectives of the Albany Felt Company.

Our good product you know about. Now, meet our customer contact team. Their job is service to you, enabling you to get *more tons per day . . . more days per felt.*

There are executives, sales correspondents, sales engineers and service engineers.

Some call on you directly . . . others write . . . or phone . . . all are dedicated to one principle . . . to be AT YOUR SERVICE.

How many do you recognize?



**SALES EXECUTIVES**

1. CHAGG CHAGNON
   Vice President – Sales
2. WAYNE DAVIS
   Vice President – Felt Sales
3. JIM SMITH
   Sales Manager

**SALES-SERVICE**

4. BILL LARKIN
5. TOM TIETZ
6. JOHN WIEGNER
7. RAY PARKER
8. JOE ARMSTRONG

**SALES DISTRICT MANAGERS**

9. BILL SCHAFFNER
10. CLIFF VAN BUREN
11. JOE TANNER

**SALES ENGINEERS**

12. LOWELL BROWN
13. CHARLIE PAGE
14. BOB SPELLMAN
15. TOM BURKE
16. LARRY LANE
17. EDMUND PACA
18. RAY DUSTRUDE
19. ED DEWAN
20. WAYNE HARWOOD
21. WALT WILLETTS
22. FRANK McGRATH
23. DICK DANDO
24. BRUCE OWRE
25. ED LYON
26. LARRY WOODSIDE
    Chief Engineer,
    Technical Field Service

**SERVICE ENGINEERS**

27. GEORGE MARSANKIS
28. BILL SHIRES
29. MERT RUBECK
30. BOB GREGORY
31. LARRY BROWN


AF

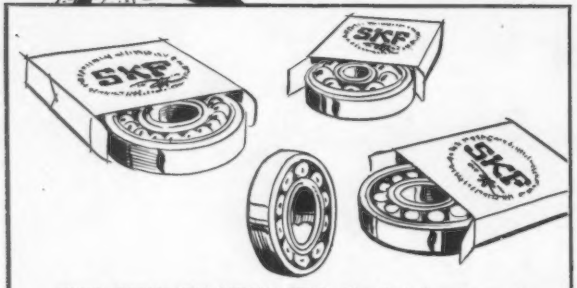
ALBANY FELT
COMPANY
ALBANY, N. Y.

*The World's Largest Manufacturer of Paper Machine Felts*

## DISTRIBUTOR DAN, the SKF bearing man, shows

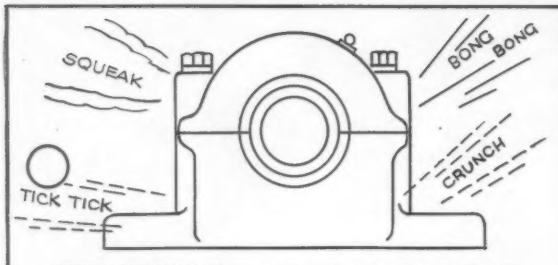
# HOW TO CHECK BEARINGS DURING RUN-IN

## —to prevent damage and downtime later!



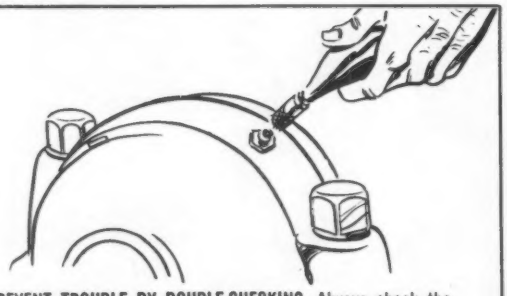

**THINK BEFORE YOU INSTALL THEM.** The first few hours of operation are the most critical in a bearing's life. So, operate the bearing at reduced speed and load during run-in. Bearing run-in periods vary from a few hours to a few weeks, but 24 hours is usually sufficient.

**NOISE CAN BE A SYMPTOM.** A soft, purring sound is all you should hear from a bearing—if it's operating correctly. Check by placing the blade of a screwdriver and listening at the handle. Any other noise means trouble sooner or later.




**KNOW YOUR NOISES.** Squeaking means inadequate lubrication. Metallic tones indicate shaft or housing interference or improper adjustment. Smooth, clear tones tell of marks in the stationary raceway. Intermittent noises indicate a damaged ball. Crunching means dirt.

**TOO HOT TO HANDLE?** There's trouble brewing if the housing feels excessively hot. High temperature usually indicates overlubrication or use of a lubricant with too high viscosity. It can also be a sign of excessive axial or radial preloading, misalignment, tight-fitting seals, or rubbing.



**PREVENT TROUBLE BY DOUBLE-CHECKING.** Always check the bearing after the critical run-in period. Examine the lubricant. If it's dirty, change it. Check the seals for signs of wear or damage. A few minutes spent double-checking now eliminates chances of costly damage and downtime later.

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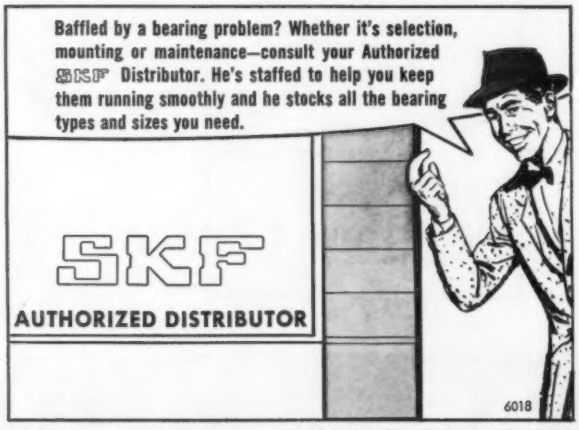

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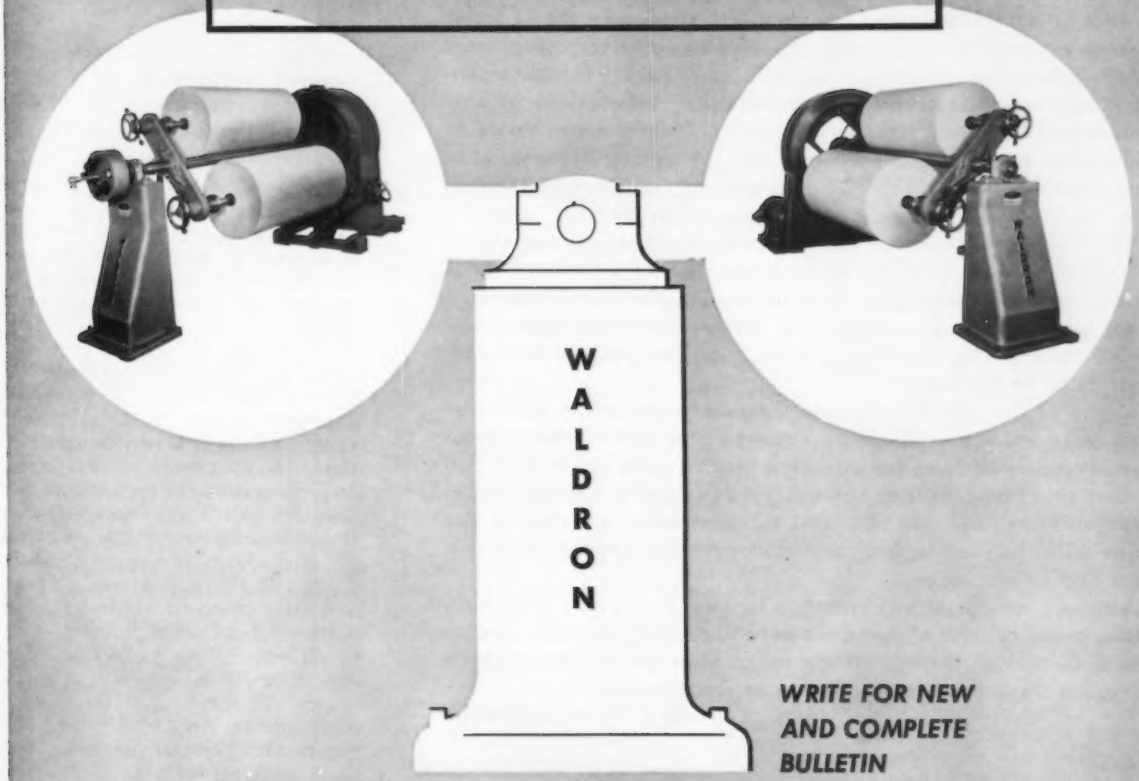


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# Outlook for Market Pulp Here and Abroad

**Twenty-one top experts give their own observations on vital aspects of the pulp market scene. Their candid opinions produce an intimate picture, sometimes surprisng.**

Paper Trade Journal retained John T. Fosdick Associates, specialists in market research to conduct interviews with the 14 major pulp sales agencies in the country and with seven large producers who sell their pulp directly. It was decided to engage outside assistance because of their training in obtaining information by this method and because it was thought that those interviewed would be more frank in expressing their personal opinions to strangers than to the editors of Paper Trade Journal who are familiar with the subject, the problems, personnel and companies involved.

There are many questions not covered by this study, such as: What are the principal paper and board grades in which market pulp is used? What is the geographic distribution of market pulp consumers? What factors have affected prices in the past and what factors will in the future? These and many other questions are still under investigation by the editors.

Copies of this article, plus detailed (nearly verbatim) reports of each interview are available on request to the editor. The only information deleted from the interview reports, each of which is two to four pages long, is that which might conceivably identify the respondent's company. We offer this information as a service to the paper mills, pulp mills, and their sales agents, all of whom form a vital part of our industry.

Although geographically speaking Finland is not part of Scandinavia, in the interest of space, we have continually used the expression Scandinavian throughout this report to include all the northern European market pulp producers, as is common practice.

John C. W. Evans, Editor

### Selecting Market Pulp A Top Level Decision Despite Technical Considerations

It was almost universally agreed that an executive officer of the company is the prime buying influence. In a small or medium size company this would be the president or the executive vice president, if the president is not too active in operating the company. In the largest companies one of the vice presidents may have the final responsibility for pulp purchase and may be the purchasing agent with the title of vice president. There was agreement that rarely does the purchasing agent have final authority, but it was frequently mentioned that he is a factor in selecting the source of supply. The influence of the mill manager, paper mill superintendent and technical department head, were definitely rated by all respondents as having minor importance in the selection of a pulp source. This may surprise some of our readers who believing that papermaking is still an art, would think that the opinion of the man who makes the paper would carry much weight. Similarly with regard to the technical men whose department tests and evaluates the different competitive pulps.

Here are some interesting comments, not necessarily typical of the replies:

"In New England where many of the smaller mills are located, nine out of ten mills must be sold by contacting the president. A total of 450 mills buy market pulp in the

***"You can be assured that policy as to type and supplier is set by an executive officer—in 50 per cent of mills the president makes the final decision."***

U.S. Either the purchasing agent (large mill) or an executive officer (medium or small mills) is the major influencing factor."

"In most large and medium size companies, some of the responsibility is delegated to the purchasing agent but the president still pulls the strings."

". . . With larger companies the prime buying influence is the purchasing agent or director of purchases."

"With large mills the purchasing agent is the key man but he is advised by the production and technical men."

"Seldom does the purchasing agent have the last word when it comes to influencing the purchase of pulp."

"The operating man does not have the influence he used to have."

"In some mills the technical department influences a purchase particularly when they have set-up specific tests for all pulps and are rigid about results."

"Both technical and manufacturing departments will work with the pulp supplier if an officer of the company tells them to. Their influence is minor."

"Pulp salesmen today are often assisted by trained technical men who travel with them. This has reduced to some extent the importance of these secondary influences."

"The technical director is a secondary influence, seen when you have a problem."

### Reciprocity is Becoming A Growing Factor in Selection of Suppliers

What is the most important factor in selecting a pulp supplier? The following factors were listed as the top influence (the numbers indicate number of times received first mention): Quality (4), Price (3), Service (3), Custom (3), Friendship (1), Reciprocity (1), Geographic Location (1). Listed as important factors were: Quality (7), Price (8), Service (2), Custom (7), Reciprocity (6).

A number of persons estimated that reciprocity was only responsible for five per cent of pulp sales, but it was thought to be a growing trend. It was pointed out that with reduced inventories, prompt shipment of the grades required has become more important. It was repeatedly stated that custom was strong in our industry i.e. once a paper mill had a satisfactory relationship with a supplier, it would take strong reasons (other than price or quality) to induce a change. Another factor is loyalty to a supplier who looked after the paper mill's need in the past when pulp was in short supply.

"During an over-supply period there is a tendency for pulp to be available from integrated mill sources and they sell cheap. This has a depressing effect on the market price but most reliable paper mills will not go for these cut prices."

"Geographic location in relation to delivery service is also a favorable benefit to sales."

"One factor we feel important is that customers do not like to buy pulp from companies that they also consider as competitors."

"Custom is a factor. Quite often it is hard to get 'in' and once you are 'in' it is just as hard to be thrown out" (Two others used almost identical words) "There are only two ways to get a competitor out—provide better pulp and give him a lower price."

### Wide Divergence in Opinions on the Number of Suppliers Needed

The variation was surprising in the answers by our experts to the question: How many pulp suppliers does the typical purchasing mill have? Slightly more than half agreed on two or three sources as overages. Two gave an answer of five sources, others were three or four. It was pointed out that in unusual circumstances a mill might have only one source of supply.

"The number of sources varies with volume. The average mill will use up to five different suppliers."

"Fine paper mills usually have just one source of supply. Others have more than one supplier for protection in case of tight supply."

"Most paper mills have three or four sources of supply—two are all that are really necessary."

"Generally five suppliers are used by large mills because most pulps of a particular grade are interchangeable and they thus protect their supply."

"The number of sources for a particular grade will vary due to circumstances. Some prefer to buy from one source, others like two or three for competitive reasons."

### Mill Inventories of Pulp Seen to be Continually Decreasing

There was a surprisingly wide range in the answers to the question. What is the average inventory (in days to run) of the pulp buying mills. The answers by those interviewed ranged from 21 to 60 days for an average mill. It was pointed out that because of the possibility of shipping delays, inventories of Scandinavian pulp might be two to six months run. There was general agreement that the buying mills have been reducing their inventories and expect the producers to keep them protected by prompt shipments. Purpose of the reduction in inventory is of course to reduce the amount of capital tied up.

Some comments were:

"Smaller mills find money expensive and hard to get and these mills want to reduce inventory and pass the buck to suppliers."

"It seems as if they don't carry any. Inventory is kept on the railroad and in the producers warehouse. They holler if shipment is late."

"Inventory policy, according to the statistics, average 35 days. In the past five years this has not varied five days one way or the other."

"Mill inventory policies vary terrifically. Some mills keep 60 days because of habit. One mill we know, using 100 tons per day, only keeps a ten day supply."

***"U. S. purchases of Canadian pulp should increase based on quality. Most U. S. areas are integrated and cannot meet the market pulp demand."***

"Mill inventory policies vary with the market. Most pulp today is delivered by rail in a 10-15 day delivery. Boat rates with cost of loading and unloading have become too high. In the old days 50 per cent of pulp was shipped by boat. Now almost 100 per cent is by rail."

"Higher inventories are kept by those mills requiring special pulp for making special grades of paper."

### Trend of Selling Pulp Through Sales Agents Appears Static at Present

Seven of the persons interviewed thought there was a direct trend to more North American pulp producers selling their own pulp. Nine thought that the situation was static with no discernible trend one way or the other. Four of the answers were of such a nature as to not permit a simple conclusion to be drawn. The answers in the first two groups above do not seem to have been influenced by the fact that the respondent was associated with a producer or sales agent. Some interesting answers to this question were:

"In the import field the trend is toward more independent agents rather than direct sales."

"The trend is towards direct sales since it is cheaper to hire salesmen in place of paying three per cent commission."

"In 10 or 12 years all large producers will have direct selling organizations even in Europe."

"There appeared after the war to be a trend to sell direct. However sales agents have strengthened themselves because of this and the situation has become static."

"Integrated mills with excess pulp tend to sell the extra production through agents."

"New producers entering the market use agents because they themselves have not had the experience."

### Modest Growth in U.S. Consumption Foreseen with Emphasis On North American Sources

United States consumption of market pulp will only increase at a moderate ratio. Very few new paper or board mills are being built without an integrated pulp mill on the site. Therefore use of market pulp has not and will not grow at the fast rate of the industry over-all. Many companies with their own pulp sources also buy some pulps for use in manufacturing special grades of paper. Sales of bleached and semi-bleached kraft have been growing and will continue to do so. Unbleached sulphite has been declining but may have reached a plateau. It was pointed out that only one sulphite market pulp mill (Weyerhaeuser at Cosmopolis) has been built in North America since 1940. One is under construction in Nova Scotia (Nova Scotia Pulp Co. at Point Tupper) but this mill will produce premium grades of bleached sulphite using a special Swedish process.

Groundwood pulp is static. Little interest was expressed in the future for market NSSC pulp, even if the technological problems involved in drying it are solved.

Purchases of Canadian pulp by American mills will continue to grow in line with consumption. U. S. imports of Scandinavian pulp will probably not increase greatly. This is largely a matter of policy on the part of the producers. The Scandinavian mills tend to look after their European markets first. When these are down there is more aggressive selling by them in this country. There is therefore considerable fluctuation from year to year. Because of the premium quality of many of their grades, there will always be a market in the U.S. for Scandinavian pulps.

"The outlook for the next three or four years for sales of our lines is not good in fact it might be called bad. There will be plenty of pulp available and new mills are going up in Canada and Finland."

"U. S. purchases of Canadian pulp will increase. Purchases are up now and we believe this trend will increase appreciably."

"More and more Canadian pulps will be shipped into the U. S. to replace American pulp being integrated into American mills."

"With the number of new paper machines being installed the U. S. pulp capacity will be used up quickly."

"Long range outlook for sales of Scandinavian pulps here is good because of high quality. Sales will continue to increase."

"Use of groundwood pulp is reducing, however the Food Additives Act may increase its use."

"By 1962 expect pulp to be in even supply followed by a shortage for three to five years."

"Big threat can come from dissolving pulp mills if rayon loses out completely to Nylon for tires. The industry has been afraid of this for years."

"U. S. demand will *not* catch up with supply and there is always the threat of a lot of paper pulp from dissolving pulp mills if they lose the tire cord market."

"With present production U. S. demand could conceivably catch up by 1965, but new production will be added before then."

### No Immediate Threat Of Russian Pulp Upsetting World Market

Only one person interviewed felt that Russian pulp constituted a potential threat in the U. S. market. One more thought it might. All the rest were very definite that there was no threat from Russian pulp here both because of quality and the political angles. One respondent saw a big immediate threat of Russian pulp upsetting the European market. Two more said it would be a threat. The remainder of those commenting on this question agreed with the editor of this magazine in his report of last year following his trip to Europe and Russia.

That is, Russia is expanding her pulp and paper industry at a tremendous rate but that this is intended to take care of her own rapidly growing demands and those of her satellites. Russia now exports substantial quantities of pulp (particularly in Europe) for economic

***"Many U. S. mills said they would not buy more Scandinavian pulp because they paid dearly for it in '46 and '49. But, when the price dropped they bought."***

***"Recently some Scandinavian producers have started taking firm yearly contracts at lower prices which has had some effect on the smaller U. S. producers."***

(exchange) and political reasons, but she also imports pulp. Trees do not make a pulp and paper industry, nor digesters a market pulp mill. The USSR has been buying large quantities of pulp and paper manufacturing equipment in North America and Europe but the nature of these purchases indicates that they speak the truth when they say these are for integrated mills. Numbers of large high speed paper machines are being bought but few pulp dryers. Admittedly for practical reasons, Russia could disrupt her economy and export large quantities of pulp, drying it inefficiently on high speed newsprint and multiwall kraft paper machines. But then where, for example, would she get paper for the multiwall bags to ship her fabulously increasing output of cement?

"Russia is a big potential threat in Europe. Last year she sold 200,000 tons to England but the quality is not good."

"They couldn't give away their pulp in the United States."

"Russian pulp is no problem—doesn't have the quality and U. S. mills take a dim view of it because of political aspects."

"If Russians flooded the U. S. market some buyers would take it at a lower price and it could mean trouble."

"Greece is a logical market for USSR pulp but they can't get it. Many Russian Satellites are bidding for pulp in Europe so apparently the USSR can't even supply them."

"In view of increasing Russian demand, the possibility of a Russian threat is remote. Even in Europe it would have to be underwritten for political purposes."

"Russia is a very serious threat. Since most European mills can blend low quality pulp with high grade material, they can be a 'terrible threat' as part of their economic warfare."

"In five years the Russians could make trouble by flooding the market with low priced pulp but only for political purposes and at the expense of their own requirements."

***"If Russia attempted to flood the world market, it would have a dire effect on their own economy. But, the next ten years she may attempt to put token amounts on the market."***

### Optimistic Outlook Indicated For Export of United States Pulp Particularly to Europe

There was quite general agreement that the U. S. sales of market pulp to Europe would increase substantially. Less enthusiasm was evidenced about the immediate (three to five year) outlook for sales to other areas.

It was felt that with the present booming European economy plus the shot in the arm being given by the Common Market there was room for considerable increase in sales of U. S. pulp there despite the expansions of the Scandinavian producers and their nearness to the market. For the first four months this year U. S. pulp exports were up 49 per cent over the same period in 1959. Several persons pointed out that the U. S. position in the European pulp market had suffered from our inexperience there plus price cutting and the dumping of off-grade pulp by some mills but that these disadvantages are rapidly being overcome.

"Sales to Europe should go up since the European market is growing faster than the U. S. market. Increased Scandinavian output cannot meet European demand and still meet their U. S. commitments."

"European mills have always used European pulps but in the past 8-9 years they have learned how to use blends because of shortages. They will continue to learn how to use U. S. pulps."

"The Swedes fought back in 1959 by dumping low cost pulp here which helped teach U. S. suppliers in Europe a lesson."

"Sales to Europe jumped in the first quarter of 1960 but believe this represents inventory buying and expect shipments will go down in 1961."

"There is a rising trend in use of U. S. pulp in countries other than Europe. South America is the most promising market because of location, but all others are in a rising economy."

"German and French companies are interested in producing pulp in Canada and the U. S. but this trend is not sufficient to have an appreciable effect."

### Modest Price Rises Probable for Next Year Following European Increases Occuring During 1960

It was generally agreed that there would be no changes in pulp prices in the United States for the balance of this year. Contract prices have been firm and spot tonnage prices close to contract. It was thought that recently announced price increases in Europe of $5 per ton by Scandinavian producers would be reflected by price increases here the first of the year. It was pointed out that pulp prices in Europe were more flexible but as mentioned here earlier, indiscriminate price cutting by U. S. newcomers to the European market had not acted to their advantage except briefly. Rising "spot" prices was felt to be the forerunner of much needed price increases.

Here is the final portion of frank opinions related to our interviewer.

"Semi-bleached kraft is really a bastard pulp. It is sold for $20 a ton less than bleached pulp and only costs $2 or $3 less a ton to produce. It is just an excuse to dump tonnage at a low price and will largely disappear as the market firms."

"Pulp prices have recently been firmer than any time in the past three years due to increasing European consumption. If it continues prices should go up."

"Prices may go up in 1961 as Scandinavian prices in Europe have already risen."

"Price varies between 'contract' and 'spot' purchasing. About 75 per cent of the pulp purchased in this country is on contract and the remainder on spot."

***"Australia and South Africa offer good prospects. South America might but it is too hard to do business with them. Everything is 'under the table' and it takes forever to get letters of credit."***

# How to Operate a Supercalender Particularly on Coated Papers

**Supercalendering, another neglected aspect of finishing, "the orphan of the industry" is discussed by this expert of more than 30 years' experience.**

**Francis E. Schiller,**
Finishing & Shipping Supt.,
East Texas Pulp & Paper Co.

**In the previous article in this two-part series on the subject of supercalendering, the author discussed the basic principles and practices of operation, supercalender and roll design, as well as maintenance of rolls. This week he gets down to the actual details of operation of the supercalender on coated papers, crew duties, responsibilities and precautions as well as care of the filled rolls while in the supercalender. As is most important in this operation, he devotes considerable attention to the subject of safety.**

The Author

## Preparing for Start-up

Before a supercalender is placed in operation (as on a start-up) a number of points should be checked:

A. Be sure to remove the large steel pins from the suspension yokes near the top of the queen roll bearing housings. To do this the operator lifts the rolls slightly with the hydraulic system, while the helpers remove the pins.

B. Before lowering the rolls into position, be sure that all of the rolls are free of dirt and foreign materials. If necessary, use air hose to blow off loose dust and wipe rolls with damp sponge by rotating suspended rolls manually. Be sure all nip guards are in proper position and that all doctor blades are in contact with the steel rolls and are not in a raised position.

C. Check pressure and lubricating systems to see that they are working properly.

D. For each of the pressure cylinders there is a pressure gauge and a pressure control knob located at the operators' control panel. Release the pressure on each side so that the stack rolls can be lowered by gravity rather than under pressure. When the pressure is zero, push down the pressure lever and before the bottom cotton roll makes contact with the queen rolls, have the stack running at least 100 f.p.m. Watch very carefully so that the rolls descend evenly and that the bearings do not get "hung up" in any way. If the rolls do not come down evenly, it may be necessary to compensate by adding a little pressure on one side or the other.

E. When all of the rolls are rotating, make sure they are clean before speeding up the calender. One piece of dirt can cause a groove known as a "ringer." If the dirt is on a steel intermediate roll, ringers will form on at least two cotton rolls.

F. If rolls are clean, increase speed to 500 f.p.m. or more and have both helpers wipe the rolls with damp sponges and warm water during the warming-up period. Excessive use of water will result in all of the fly and spreader rolls getting wet. Too much water can cause the cotton rolls to slip and skid with resulting chatter marks. The pressure can be applied gradually and evenly to the rolls until 1,250 p.s.i. or moderate operating pressures are obtained.

G. While stack is warming up, open the steam valves slightly so that the steam showers will be warmed and any condensate in the line will be drained off. Caution helpers before turning on any steam so that they do not get burned. Steam showers should be set at a slight incline so the condensate drains into the outlet pipe, which should be located on the lowest end.

H. When stack is sufficiently warm, release the pressure and bring the stack to a stop. Turn off any steam valves and wipe any condensate that may be on the fly rolls, spreader rolls, or any other part of the calender that will be in contact with the paper.

I. Turn on the cooling water to the three bored steel intermediate rolls. At normal operating speeds, only a small stream of water is needed.

J. If the stack is equipped with water-cooled friction brakes for the unwind stand, open water valve just a little bit.

K. The calender should now be ready for the threading and supering process.

## Threading a Supercalender

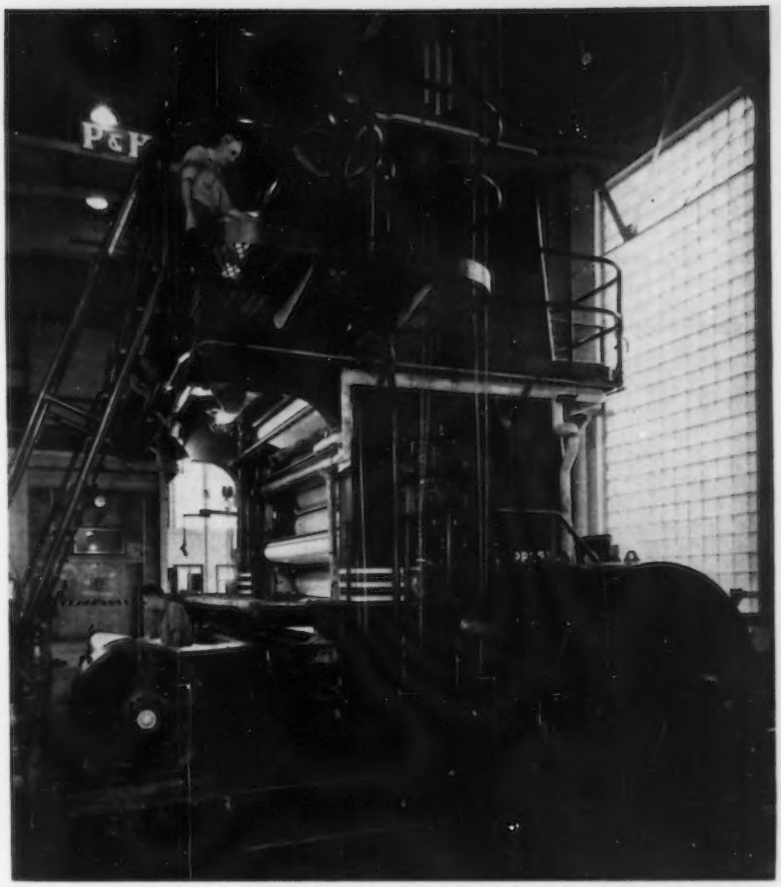
One of the most important maneuvers that the supercalender crew has to perform is to introduce the

web of paper into the nips and around the fly rolls without putting any marks in the cotton rolls. This is quite a trick and requires considerable practice and experience.

First, the roll of paper is carefully inspected on both ends to see if there are any cracks or evidence of hidden breaks that have not been flagged by the machine crews. Usually it is necessary to tear off a few layers from the outer circumference of the roll to remove any loose, damaged, or wrinkled paper. The log roll is then lifted by crane into place.

The coupling on the unwind motor shaft is then attached to the receiving bell of the Beloit spool. A piece of paper tape is placed on the center of the leading edge of the roll of paper and while the roll is rotated by use of the pay-out motor, a lead strip or "tail" is made. This lead strip is six inches wide at the beginning and at a distance of approximately 30 feet the strip is gradually widened to the full width of the paper roll. Some crews prefer to have the lead strip on the edge of the roll but on wide supercalenders the catwalks are hollowed out in the middle so that the men can more easily thread the stack. On small, narrow stacks a much shorter lead strip can be used and there is no advantage to threading down the middle. On wide stacks the spring rolls and spreader rolls have high crowns and threading down the middle utilizes the spreading properties of these crowns. Also, the fly rolls are grooved from the middle to the ends and this helps the sheet to draw up.

When the lead strip is prepared, the operator passes it over the top roll of the stack to the "A" helper. The "A" helper places a strain on the strip and lines it up so it is straight. When he is ready, he signals to the operator, who starts the stack at a threading speed of approximately 30 f.p.m. The "A" helper then introduces the end of the lead strip into the first ingoing nip. This is safely done by placing the thumb and first two fingers of the hand on the edge of the strip and about 6 inches from the end of the strip. By using the proper pressure on the edge of the sheet, the fingers cause a kink in the lead end that makes the sheet stiff. Thus, the end of the paper strip can be introduced into the nip while the ends of the fingers go no farther than the nip guard. Caution must be exercised at this point because if the lead strip breaks or snaps off, the strain that has been placed on the paper to keep it tight causes the fingers to shoot forward and possibly enter the nip. At no time should the fingers be placed over or under the nip guards.



**The round auxiliary bars above the front of the fly rolls aid the crew to descend safely while they thread stack. Nip guards are shown in proper position.**

## Handling a Lead Strip

The knack of grasping a lead strip and placing a kink in it to make it stiff is easily taught by a competent instructor. Some men get the knack of it in a few days. New employees are encouraged to practice with strips of paper during their spare time because they will never be safe while threading a stack unless they learn this trick. Also, this method makes it possible to get the entire web through the nips without excessive marking of the cotton rolls. Because of the high gloss that is now necessary for coated paper, threading marks will show up on the sheet and will cause time to be lost for sanding operations. If, in a crew, two of the men are proficient at threading and one of the crew is not, there will be many hours lost due to sanding for threading marks.

When the sheet emerges from the first nip, the operator grasps it, places it under the spreader roll and over the blow roll, kinks the strip to make it stiff, and introduces it into the next nip. This process is repeated until the bottom nip is reached. The bottom five nips seldom have spreader rolls, but do have blow rolls. If the blow roll is going to be missed or skipped, the lead strip is allowed to follow the steel roll and it is not necessary to "kink" the strip. Blow rolls are seldom used at the reversing nip. Occasionally a good threading team will do the job without having to make additional tear-outs as the sheet widens up. However, if any slack does occur in the sheet, it will be necessary to make tear-outs until the sheet draws up tight over the blow rolls.

When descending, the employee must watch his footing and his balance so he does not slip and fall. Taped guards, in the form of horizontal pipes, placed in brackets a few inches above the top of the blow roll are sometimes used to provide safer footing. It is also important that the catwalks are properly designed and

placed in the right locations.

While the operator and "A" helper are threading the calender, the "B" helper gradually applies tension to the sheet as it widens out. This tension is necessary to make the sheet pull up tight in the nips. When the tension has been applied, the "B" helper descends to the bottom of the stack and gives any necessary help if tear-outs are necessary at the bottom nips.

### Several Stop-Start Buttons

The stack should be equipped with stop-and-start buttons at various strategic places on both sides of the stack frame so that if any difficulty arises during threading any of the crew members can stop the stack. Threading is not a dangerous operation if it is done properly but all employees must be taught to respect the ingoing nips. A good stack man will never reach into an ingoing nip, even though the stack is stopped. The only means of communication between the operator and his helpers during the threading process is by the means of loud shouts or warnings. The safest rule is to never place the hands in such a position that they could get caught in the nip, even if the stack is started accidentally.

Another hazard of threading can be the steam shower pipes and the oscillating doctors. At several of the nips it is necessary for the threaders to place their forearms a few inches above the steam showers. Even though the steam is turned off, the pipe may be hot and can cause severe burns.

No stack should ever be washed, sanded, or threaded unless all doctor blades are in contact with the steel rolls and the tension levers in place. One of the rules that all maintenance men and supercalender crews must learn is. "Whoever raises a doctor blade off a roll and leaves it in a raised position for any reason whatsoever must leave a written warning at the operator control panel and also on the doctor frame itself." For example, these words written on a piece of paper — "Danger — This doctor blade is *up*."

Another danger factor is the limited space between the spreader rolls and the fly rolls. During the threading process, the sheet must be placed under the spreader roll and over the blow roll. There should be sufficient space between the spreader and blow rolls so that a man's hand and forearm can pass between the rolls with at least an inch of space to spare. Severe friction burns can result if these rolls are not stopped before threading.

***"One of the most important jobs of the crew is to thread the paper through the supercalender without putting any marks on the cotton rolls."***

The last part of the threading operation consists of passing the sheet under the carrying roll and Mount Hope roll that is located between the bottom nip and the windup spool. Some calenders also have oscillating gloss meters in that area. The sheet must be smoothly wrapped around the windup spool so that a tight, straight start is obtained. A loose, wrinkled start can contribute to cross buckles and also cause the roll of paper to slip or telescope later on.

### Trim-outs and Partial Threading

It is sometimes desirable to use a sharp jackknife blade to trim out a known defect or series of defects from a section of the sheet. If the defect is in the middle portion of the sheet, an oval-shaped hole can be cut in the area circling the defect. Usually, this will permit the sheet to go through all the nips at slow speed without snapping off.

If the defects are near the edges of the web, it is better to make a long, gradual, curved cut with the knife. The cut is started from the edge ahead of the defect and is widened to include the defects in the trimmed waste. Then the cut is tapered slowly back to the sheet edge.

This type of trimming can also be used to rethread individual fly rolls. In this case the knife blade is started from the edge of the sheet by placing the blade on the surface of a steel roll at the nip involved. While the stack turns at thread speed, a long tail or threading strip is cut until the fly rolls are threaded and the strip emerges at the bottom nip. Then the knife is moved slowly across the roll face to the opposite end. This method is often used when the paper is dry and brittle and standard procedures result in repeated snap-offs during the threading process.

***"Maximum crew and supercalender efficiency is chiefly dependent on receipt of best possible rolls with defects clearly marked."***

### Operating a Supercalender

After the full width of the sheet has been threaded through the stack and is smoothly wrapped on the windup spool, the operator checks the tension controls and presets the rheostats on the control panel so that proper tensions will be maintained during stack acceleration. He then presses the "run" button and the stack immediately starts to go up to the preset speed. During initial acceleration, the operator applies the loading pressures to the calender and at practically the same time opens the steam valve to the steam showers. In a very few seconds he places a blue flag on the small amount of paper that has been wound on the windup spool so that the rewinder operator will later know at what point the paper was being properly supered. The helpers again check the calender rolls to make sure that no paper scabs or foreign material is on the rolls.

It is very important that the unwind tension be sufficient so that the sheet will not flutter or wrinkle going into the first nip. Short draws aid in this control. It is equally important that the windup tension be moderate enough to avoid wrinkling the sheet, yet firm enough so that the paper is not wound loosely. If the windup tension is not set properly, the roll can slip badly, making it necessary to shut the calender down and attach huge steel collars to the spool. As the windup roll increases in diameter, it is usually necessary to keep adding a few amperes of windup tension. Most modern supercalenders use electric motor generators for both the unwind friction and the windup motor. If mechanical devices are used, the operator will, of course, have to make manual adjustments and keep the friction drums cooled to proper temperatures by use of water valves or air.

### Checking Quality

If the roll being supered is the first roll of a new grade and basis weight, it may be necessary to stop the supercalender after the steam and pressure have been applied and take a supered sample of the web to the laboratory for testing to make sure that the specifications are being met. While the physical tests are being made, the operator visually examines a full width strip to check the

surface appearance for calender marks, blackening, two-sidedness, and other obvious defects. If the paper is up to specifications, the supering process is resumed. It may be necessary for the operator to add more steam to one side than the other to make up for discrepancies.

As the roll builds up in diameter, the operator feels the roll for density and evenness. If one end of the roll is softer than the other, he makes adjustments to the loading pressures. If there are soft places in the roll, he may place canvas pads over the steam shower that match the soft area. If large amounts of steam are being used, it is sometimes possible to improve the physical appearance of the roll in the soft areas because the softening effect of the steam has been reduced by the pads and the paper in the area does not respond as well to the supercalendering action. If the paper is uniform coming to the calender, padding of the steam showers is unnecessary. Padding of steam showers is frowned upon because it can cause lack of uniformity in the finished gloss.

The effect of steam is highly overrated as a means of obtaining gloss. Actually, excessive steam loosens the coating and has a deteriorating effect upon brightness and other qualities in the paper. If a sheet is coated on both sides, it is very difficult for the steam to penetrate. Paper actually has a slight reduction in moisture content during the supering process but to a very small degree. The ideal way to supercalender paper is to eliminate the use of steam. In standard practice, however, it is usually necessary to use a little steam on the wire or roughest side.

It should always be realized that a supercalender is not a machine of magic but that it can only lend its ability to bring out those properties which are latent in the sheet. It brings out the bad properties as well as the good. A supercalender is a burnishing machine and to do its work properly the cotton rolls must be kept as level as possible. Changing the profile of the cotton rolls by means of a sanding machine to favor deficiencies in the basic sheet usually accomplishes no good but does considerable harm. It is impossible to burnish paper uniformly if the full face of the cotton roll is not in contact with the sheet.

***"It is very important that the unwind tension be sufficient so that the sheet will not flutter or wrinkle going into the first nip."***

### Duties of the Supercalender Crew

The crew on wide supercalenders consists of an operator, "A" helper and a "B" helper. In some mills the helpers are termed first and second helpers. It is the operator's responsibility to direct the working activities of the helpers. The operator's primary job is to watch all of the controls while the roll is being supered and see that the supercalender is doing the best possible job. It is usually necessary for him to remain very close to the control panel. By feeling of the roll as it winds, he can tell when to add or reduce windup tension. He also watches the unwind roll for any flagged defects and slows or stops the calender when necessary.

The control panel is equipped with an emergency stop button. This button is pressed the instant the sheet snaps off for any reason whatsoever. If the paper is wrapping any of the cotton rolls or is bunching up near a nip, in addition to pushing the emergency stop the operator raises the pressure lever to separate the stack rolls.

The greatest drawback or hazard of the supercalendering operation is the vulnerability of the cotton rolls to damage. The entire crew concentrates its energy on preventing the sheet from snapping off during operation. They are, to a very large degree, dependent upon the previous inspection given by the paper machine crews. If a large obvious defect or crack is unflagged in the roll to the supercalender, it is a sure bet that the defect will break and damage the rolls. The greatest source of downtime and lack of availability at the supercalenders is due to the time lost sanding for marks and replacing damaged cotton rolls. (A detailed description of the sanding operations will be included later in this report.)

If it is necessary for the operator to leave the controls, he will call the "A" helper to replace him. Sometimes it is necessary for the operator to go to the rear or the top of the stack to check on the draws and to make adjustments. He also may wish to check on the laboratory reports, etc. In addition to replacing the operator temporarily, the "A" helper carries out specific instructions given him by the operator. The "A" helper and the "B" helper assist the operator during sanding operations, sampling, changing of the finished rolls and the unsupered logs. While the stack is in operation, the two helpers prepare the next roll to be supered by tearing off any outer layers of wrinkled paper and by preparing a lead edge which will later be spliced. Their duties include all of the items listed in detail in their job descriptions.

### Oscillating Wind-up

Some supercalenders are equipped with oscillating windup stands. When the trim is wide enough to permit, the supercalender windup spool is sometimes oscillated to minimize ridges, welts, buckles, soft spots and poor roll condition. However, it is also necessary for the rewinder to oscillate the paper and there seldom is enough trim so that oscillation can be performed on both machines.

If no snap-offs occur, the stack is gradually brought to a stop when only a small amount of paper remains on the unwind spool. The unwind spool is then given three or four feet of slack and a straight edge cut is made across the sheet. After samples have been taken, the supered roll is removed by crane from the windup stand and the empty unwind spool is lowered to the windup stand. The unsupered log is raised to the unwind stand and a splice is made so that the stack will not have to be rethreaded.

Very close cooperation is necessary between the supercalender crews and the machine crews and also between the supercalender crews and the production rewinder crews so that a high standard of quality and mechanical operation is maintained.

The proper identification of all rolls, the careful filling out of roll tickets and reports, the taking of representative samples as specified are additional important functions of the supercalender personnel.

### Sanding a Supercalender

If the sheet of paper snaps off or breaks when the calender is in operation, the paper crumples and twists and usually puts indentations or

***"The effect of steam is highly over-rated in obtaining gloss. Excessive steam loosens the coating and has a bad effect on brightness and other properties."***

marks in the cotton-filled rolls. The depth of the marks depends on the operating speed and the severity of the wadding effect during the break. If the loose paper bunches up in the fly rolls and then is caught in an ingoing nip, the marks are usually so deep that it is impractical to sand and the rolls will have to be replaced with reconditioned rolls. The changing of the rolls is usually performed by the mechanical, maintenance or repair groups. Several hours are required to change the lower rolls and greater time to change the top rolls.

If the marks are shallow, it is usually possible to remove the marks with a pneumatic sanding machine and still maintain a fairly level cotton roll. The best sanding machine developed to date is a Buckeye sander which has a nine-inch diameter disk that travels at 6,000 revolutions per minute, if sufficient air pressure is available. The sanding disks used depend on the severity of the marks. The disks range in grit size from 36 to 120. The 36 grit is too coarse because of the deep grooves and scratches that result in its use. The principle of sanding is to make a series of fairly coarse scratches and gradually eliminate the scratches by consecutive use of finer grit disks. The operator attempts to reproduce the slow, steady movement of a lathe. Fairly deep marks can be removed by first using 50 or 60 grit disks and then applying several 80 grit and several 120 grit disks. If the marks are very light, it is possible to use only 120 grit disks.

Regardless of how much sanding is done, it is always necessary to finish up with several 120 grit disks that are moved very slowly across the face of the roll to remove visible sand scratches and to obtain a good, smooth polish on the roll during the washing process.

To sand a cotton roll properly and accurately, it is necessary to look through the nip to locate any high or low spots. The fly rolls, spreader rolls and nip guards must be properly positioned to allow this visibility.

### Strong Lights Necessary

The stack should be equipped with very strong lights in front and back with switches so that either the lights on one side or the other can be used. If the sanding is done from the front of the stack, the lights are turned off in the front and left on in the rear. In the top two nips, the steam showers and spreader rolls may retard the light and it will sometimes be necessary to use several 200 watt lights attached to a 50-foot cord and have one of the helpers move the light across the nip during the sanding and checking operation. The light bulbs should be guarded with wire mesh guards so that the bulbs do not break and allow broken glass to get in the nip. It is, of course, also important that the electric cord and the rubber hose on the sander are kept away from the nips. Severe damage to the cotton rolls will result and there is an extreme danger of physical injury to the employees. However, these operations are fairly safe if proper precautions are taken. With all cotton rolls except the bottom two rolls, the air hose should be securely tied to a catwalk or brace so the operator will not have to carry the full weight of the hose as he moves back and forth while sanding. The air hose should be long enough to reach to the ends of the roll face. If the hose is too long, it is likely to twist and get caught in one of the lower nips.

Because sanding must be an accurate operation, it is important that the catwalks and guard rails are properly positioned to provide good footing and balance. During the sanding operation, a large amount of cotton dust and a small amount of abrasive dust fills the air and all crew members should wear dust respirators and safety goggles.

While the operator is sanding, it is necessary for the other crew members to keep the rolls free of dust and grit to prevent "ringers" from being made in the cotton rolls. Ringers are narrow cuts encircling the roll and they will be as wide as the particles of grit that cause them. The oscillating doctors will assist in keeping the steel rolls free from accumulation but the helpers must keep the cotton rolls clean. Felt covered blocks 3x3x12 inches are used to pick off dust and grit from the rolls. Due to their square shape, the blocks are quite safe to use if the felt is securely nailed and there are no stringy edges.

***"Changing the profile of the cotton rolls with a sanding machine to favor deficiencies in the sheet from the paper machine usually does no good and considerable harm."***

### Using Steel Scrapers

If the felt blocks do not pick off all the dirt, it may be necessary to use steel scrapers. These scrapers are made from pieces of doctor blades and should be fitted with rounded handles on the unsharpened ends. Scrapers are quite safe to use on steel rolls if they are not held near the ingoing nip but are dangerous when used on cotton rolls. The blade should never be pointed toward the cotton roll if the roll is turning toward the blade because the sharp edge may catch in the soft material and jerk the scraper from the employee's hand. If the scraper is inverted and used as a wiper on the metal portion of the roll, there will be no danger of the blade sticking but a good grip must be maintained so it does not enter the ingoing nip.

An oscillating doctor blade should never be raised off the steel roll during a sanding or washing operation because of the danger to the stack crew.

At no time should any sanding operations be done while the stack is supering paper. Some years ago it was standard practice to manually use wooden blocks with sheets of sand paper wrapped around them to remove marks and coating scale from the rolls. Needless to say, any paper supered while this was done was unfit for sale because it contained abrasive grit and cotton dust and would be unprintable. Also, any cotton roll that is sanded must be washed and polished before the supering process can be done properly.

The use of sand paper on steel rolls is an unpardonable offense and must never be tolerated. If material on steel rolls cannot be removed with a scraper or felt block, the stack should be stopped and the material washed off with the use of sponges and warm water.

If there are only one or two marks in a cotton roll that are objectionable, it is possible to "hand rub" the marks by using fine sand paper. Manual hand sanding or "rubbing a mark" is only done when it is not

***"The greatest drawback or hazard of supercalendering is the vulnerability of the cotton rolls to damage. It is the greatest source of downtime."***

practical to hook up a sanding machine and sand the entire roll face.

### Important Precaution

As stated earlier in the section describing supercalendering operation, it is all important that the cotton rolls be kept as level as possible. Hollowing out, or sanding a cotton roll out of profile to make up for deficiencies in the manufactured sheet, is poor operation. The major results are burned cotton rolls, reduced cotton roll life, un-uniform gloss and surface characteristics, plus considerable lost time due to sanding operations.

The use of uneven and excessive pressures in an attempt to compensate for deficiencies in the basic sheet produce deformed and burned rolls with no benefits.

### Washing the Rolls

After the sanding operations are completed, it is necessary to use air hoses and blow off any accumulation of dust from the doctors, steam showers, fly rolls, nip guards, and any other accessory equipment. It is then necessary to wash the rolls so that the newly sanded cotton rolls will be given the proper polish. If a supercalender has been out of operation for any length of time, it is usually necessary to wash the rolls during the warming-up period.

On occasion, the cotton rolls will accumulate a thin film of coating due to a condition that is known as "dusting." If the dusting is excessive and cannot be kept at a minimum with the use of a felt block, it may become necessary to remove the sheet from the stack and wash the cotton rolls to restore the proper burnishing surface.

The safest way to wash stack rolls is to use manufactured cellulose sponges. These sponges can be purchased in various sizes but the safest size measures 2½x4¼x6½ inches. This size sponge will be slightly larger when wet, but it is easily gripped in the hand. If the employee should lose his grip on the sponge, the brick shape prevents it from going under the nip guard and damaging the cotton rolls. Natural sponges and rags have too many stringy ends that can catch in a nip and are definitely unsafe to use. Oscillating doctor blades should always be in contact with the rolls and nip guards should be in the proper position when the stack rolls are being washed.

While washing the rolls, it is necessary for the crew members to walk back and forth along the various catwalks. On wide supercalenders the catwalks are hollowed out in the middle portions to allow the men to descend when threading the stack. Small portable wooden bridges can be placed over the hollowed-out portions to provide a safer walkway during the washing operation. If the wooden bridge is fitted with small steel studs that fit into matching bored holes in the catwalk, there will be no danger of the bridge shifting or sliding out of position. These bridges can also be used when the rolls are being sanded.

### Overlooked Danger Area

One of the overlooked danger areas on a supercalender is the space between the spreader roll and the cotton roll. Spreader rolls are auxiliary tapered rolls that are used in conjunction with the fly rolls in the top nips of the stack. The space between the fly roll and the spreader roll should be large enough for a man's hand to reach through because this maneuver is necessary during the threading operation and also occasionally during sanding and washing operations. None of these operations should be performed unless all fly rolls and spreader rolls are in a stilled position and are not spinning.

The best liquid with which to wash cotton rolls is lukewarm water. Kerosene and liquid waxes tend to deposit a film on the surface of the rolls. A slight amount of Ivory chips in a bucket of warm water will help to remove discoloration and black pencil-lined streaks which occasionally result when a calender is run with the doctor blades down and no sheet of paper in the nips. The proper operating temperature of a cotton roll is 150°F. and if undiluted kerosene is applied to these rolls, the result is not beneficial and there is always danger of fire. Some mills use a 1/5 alcohol and 4/5 water mixture but there is no evidence that this is superior to plain lukewarm water. Only a small amount of water should be used. Excessive amounts can cause slippage and washboarding of the cotton rolls.

### Safety Precautions

It is possible that more employees get their fingers caught in stack nips during the washing operation than during threading or sanding operations. However, if the nip guards are all properly positioned and square cellulose sponges are used, the danger can be greatly minimized.

The importance of keeping the operating areas free of oil, dirt, grease, broke, junk, etc., cannot be overemphasized. This is vital to quality and production, as well as safety. A neat, clean working area is always indicative of an efficient, skilled crew.

New employes and vacation replacements should always receive a thorough description of the dangers of the ingoing nip. There are, of course, many other places on a supercalender where a man may be injured. Loading and unloading rolls with an electric crane is always a potential source of accidents. The handling of large slabs of "broke" requires a knowledge of the correct way to lift. There are chances of severe falls when ascending and descending the steel ladders that reach from the floor to the unwind stand. But the greatest danger area is, and probably will always be, the ingoing nip.

**"A Chinaman doesn't use as much paper in a year as you sometimes do in a day."**

# How Mill Standards Help Production

**The "High Standards" concept has helped push production at Fibreboard to higher rates, as well as improve quality and lower costs.**

**Eugene C. Ingalls,**
Fibreboard Paper Products Corp.,
San Francisco, Calif.

What is a "Mill Standard?" In our Company, the term is limited to those standards — or norms — which are applied to variables which are of concern to production people. In this light, then, "Mill Standards" include norms for: safety; material quality — whether raw material, in-process, or finished goods; crew size; for formulation; equipment utilization; production rate; costs; and for other variables. They serve as a guide to desired production and assist in goal attainment.

How may mill standards help production? To illustrate one aspect of this "How," I have chosen a specific example — operating cost standards. This example has been chosen with particular reference to the primary purpose of a production unit given earlier — to produce, on time, a quality product at a cost yielding a profit.

Therefore, to serve these several desirable and necessary ends, it is essential that cost budgets accurately portray historical data, tempered only by such future changes as are known or may be reasonably expected. This very fact seriously undercuts the value of these standards to production people. To use them as they exist tends to fix or lock in those factors of inefficiency which existed over the period during which the standards were developed. It seems safe to say that no plant has yet reached the ultimate; so, these inefficiencies always exist. It is a comfortable feeling to be able to say that the required volume of goods has been produced at budget cost or less. This same statement leads to a most uncomfortable feeling if it is reworded to say that these goods were produced at the same old cost adjusted only for changes in the price of raw materials, utilities and labor!

## Concept of High Standard

Some time ago, Fibreboard became dissatisfied with this classic approach. We desired a method whereby cost standards could be further developed so that they might really serve as a guide to improved production performance. I shall outline for you a novel concept developed as a result of this dissatisfaction. This concept, which has been used with success, is called the "High Standard."

By this concept, performance is compared with the ultimate rather than with past history. One might say that we walk around and look at the cost picture from the other side. The "High Standard" is a real goal. It is not a given per cent better than present performance. It is an ideal to be reached with great difficulty.

The "High Standard" is developed by calculating the theoretical ultimate performance which can be expected from a particular productive unit or cost center under idealized conditions. Working from this new base — from the absolute top performance down, as it were — reasonable but tight allowances are made for conditions which will arise in actual production. These new norms then are converted to dollar values in the manner previously used to develop the cost budgets. We have established a performance goal which is no longer tied to history. Rather, we have a goal which is based upon the capabilities of our tools of production.

Very possibly, this statement is oversimplified and requires some further development. To do so, Figure 1 has been selected for purposes of illustration only.

## Machine Limitations

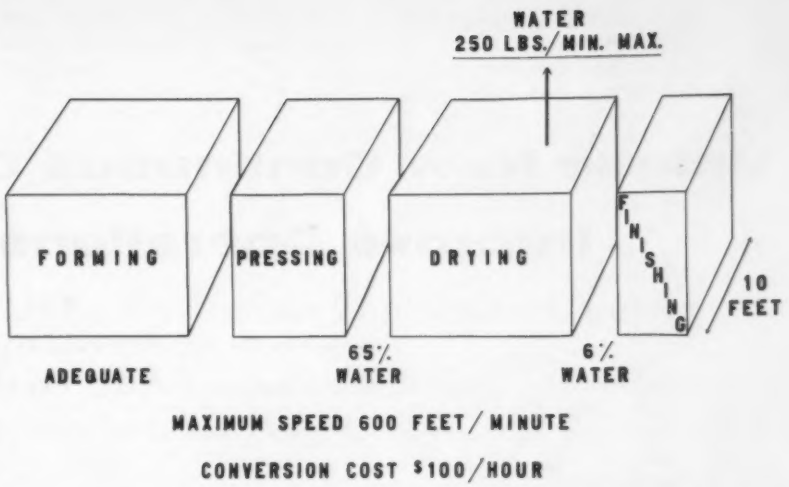
As outlined on Figure 1, let us assume we have a ten-foot trim specialty paper machine capable of running at a maximum speed of 600 feet per minute. We also shall assume that this machine has a drying system capable of removing 250 pounds of water per minute from our sheet. This latter figure has been calculated carefully from the available dryer surface and the existing air system (assuming the dryers to be clean — both inside and out, and that the condensate system is functioning properly). We shall make certain further assumptions. Among these assumptions would be that our forming section is capable of delivering desired sheet formation at maximum speed and that our press section, at this speed, is capable of delivering a sheet containing 65 per cent water. Paper at 6 per cent moisture is desired at the reel. Machine hour costs

**TABLE I**
**THREE TYPES OF STANDARDS**

Basis Weight 25 Lbs./M. Sq. Ft.

| | Theoretical | High Standard | Historical Standard |
|---|---|---|---|
| Minutes Operated/Hr. | 60 | 57 | 55 |
| Trim Width—Inches | 120 | 116 | 115 |
| Drying Efficiency—% | 100 | 95 | 92 |
| Max. Evaporation—Lbs./Min. | 250 | 237 | 230 |
| Water at Finish—Lbs./Min. | 7 | 7 | 7 |
| Water From Press—Lbs./Min. | 257 | 244 | 237 |
| Equivalent Speed—Ft./Min. | 552 | 527 | 490 |
| Production—Tons/Hr. | 4.14 | 3.66 | 3.22 |
| Cost—$/Ton | 24.20 | 27.20 | 31.05 |

Figure 1 defines limitations imposed on our theoretical specialty paper machine.




are those of our cost budget, or $100 per scheduled operating hour.

Now, let us turn to Table I. The first column shows the theoretical operation of this machine on paper having basis weight of 25 lb. per 1,000 sq. ft. We can determine by calculation that coming to the dryer section we would have 279 pounds of water per minute when operating at top design speed. If our finished sheet is to contain six per cent moisture, this amounts to seven pounds per minute. The difference, 272 pounds per minute, is more than the capacity of our dryers. Consequently, by calculation, we find that our maximum speed is limited by the dryer section to 552 feet per minute. Production of paper is limited to 138 pounds per minute or 4.14 tons per hour. At a machine hour cost of $100, we find the theoretical conversion cost to be $24.20 per ton.

## High Standard

This cost, of course, is unrealizable in practice since we have assumed ideal dryer conditions, 100 per cent running time, and 100 per cent trim width utilization. We may never expect to attain continuously these conditions in practice. Consequently, for our "High Standards," we may apply certain correction factors. For purposes of illustration, see the second column in Table I. Let us assume 95 per cent drying efficiency, 97 per cent machine trim attained through careful planning, and 95 per cent running time after allowance for clothing change, wash-ups, grade changes, start-ups, and other necessary factors. We find that our effective operating time changes from 60 minutes to 57 minutes per hour. Our trim width is reduced to 116 inches. Also, because of lowered dryer efficiency, the water to be evaporated must be reduced to 237 pounds per minute. This latter change reduces our machine speed to 527 feet per minute to balance our drying capacity.

By calculation, using these factors, we find our "High Standard" production to be 3.66 tons per hour. Conversion cost amounts to $27.20 per ton.

## Historical Standard

For comparison, I have indicated in column three of Table I the historical budgeted production as 3.22 tons per hour and a conversion cost of $31.05 per ton. I have chosen these values to indicate that you usually will find the "High Standard" much harder to meet than budget. In fact, if this is not so, you should check your theoretical and high standard calculations.

Our aim, on this grade, is therefore to produce 3.66 tons of quality board per hour at a conversion cost of $27.20 per ton. We know that to exceed this aim requires changes either in the press or dryer sections. We thus are in a position not only to judge our performance objectively, as well as the reasons we fell short of the "High Standard," but also to evaluate and justify any proposed equipment changes.

## Effect of Grade or Weight Change

Obviously, if the grade or weight change, new values must be determined. For example, Table II shows the effect of a change of basis weight from 25 to 20 pounds. The major factor I wish to point out here is that, at 600 feet per minute, we have 222 pounds of water per minute to be removed by the dryer section. This is within its capability at 95 per cent efficiency. Accordingly, the machine should operate at a full 600 feet per minute. "High Standard" production then should be 3.32 tons per hour.

You will note that we have not applied the "High Standard" concept to the machine-hour cost. This is not an oversight. To carry through properly to a "High Standard" conversion cost, this should be done. However, the method would be similar to the example just cited. It would be applied to direct and indirect labor (including overtime), machine clothing, supplies, and other component costs making up the machine-hour rate.

## Results Obtained

Mill standards, including production cost standards, have served to push production to higher productive rates, to desired quality, even as this level of quality has risen steadily, and to lower costs. However, operating cost standards developed on the historical basis show clearly only where we have been.

The "High Standard" can be a powerful incentive toward leading production efficiency much closer to 100 per cent of theoretical that it is today, and to see where we are going.

TABLE II
EFFECT OF WEIGHT CHANGE ON STANDARDS

Basis Weight 20 Lbs./M. Sq. Ft.

| | Theoretical | High Standard | Historical Standard |
|---|---|---|---|
| Minutes Operated/Hr. | 60 | 57 | 54 |
| Trim Width—Inches | 120 | 116 | 115 |
| Drying Efficiency—% | 100 | 100 | 100 |
| Max. Evaporation—Lbs./Min. | 222 | 222 | 222 |
| Water at Finish—Lbs./Min. | 7 | 7 | 7 |
| Water From Press—Lbs./Min. | 229 | 229 | 229 |
| Equivalent Speed—Ft./Min. | 600 | 600 | 600 |
| Production—Tons/Hr. | 3.60 | 3.32 | 3.11 |
| Cost—$/Ton | 27.80 | 30.10 | 32.20 |

Paper Presented Before The 41st Annual Convention of Paper Industry Management Ass'n., June 7-9, 1960.

# Unique New Continuous Digesters Improve Operations at Two Mills

**Reports on two different types of continuous digesters at the Alkaline Pulping Conference revealed efficiency of operation and good pulp quality.**

**Paul D. Van Derveer,**
Associate Editor,
Paper Trade Journal

Operating reports on two different types of continuous digesters together with a panel discussion on high yield kraft pulping highlighted TAPPI'S 14th Alkaline Pulping Conference held August 22-24 in Portland, Ore. One of these was Blandin's unique 45 degree angle Messing-Durkee digester; the other was Hammermill's new Impco continous digester. The reports on both were highly favorable.

C. A. Richardson, technical director of Blandin Paper Co., told of their investigation of new pulping processes in the interest of becoming more closely integrated by using local woods in place of expensive purchased chemical pulps; then described their present system which has given the desired results in production of coated and uncoated groundwood publication papers.

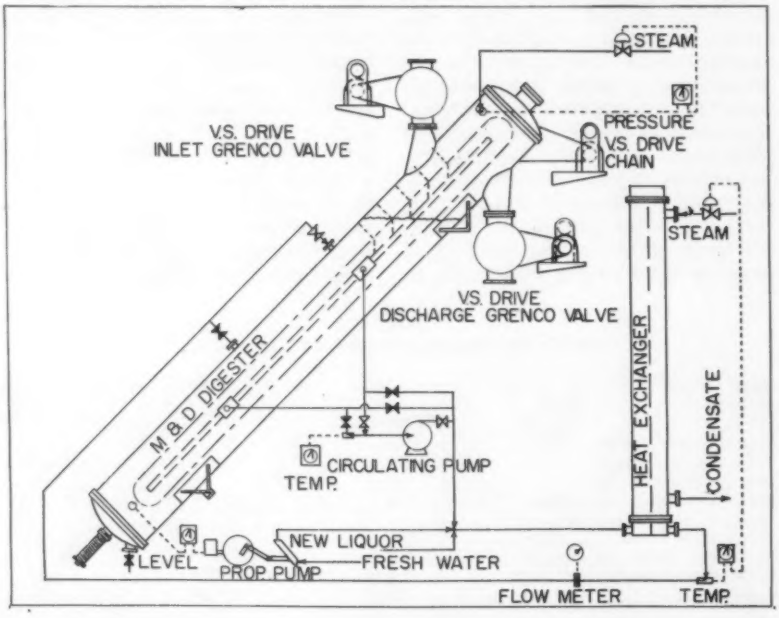
In Blandin's process small chips are produced by chipping two-foot blocks on a 60-inch 10-knife chipper, with the oversize from the chip screen going back to the chipper. This produces small chips very well suited for rapid impregnation. The chips are fed to a weigh belt from an intermediate chip bin having a variable speed screw bottom. The chips next drop into the top Grenco valve feeding a Messing-Durkee continuous digester. The Grenco valves are rotary valves having a tapered plug and liner construction which permits adjustment of the clearance at any time. The valves are driven by variable speed drives, and the compartments are not completely filled, Mr. Richardson pointed out. "In other words, the Grenco valves are not used as feeders, but merely as conveyors and pressure seals."

The digester consists of a stainless steel vessel three feet in diameter and 30 feet long. It extends through the floor at an angle of 45 degrees, and its drive and the drives of both Grenco valves are above the operating floor. The digester is divided into two sections by a hollow mid-feather running lengthwise. A drag conveyor moving slowly carries the chips down the top side of the mid-feather and back up the under side of the digester to the bottom of discharge Grenco valves. The chain is driven by a variable speed drive through a sprocket near the top of the digester and is guided around the turn at the bottom by another sprocket whose bearings are inside the digester.

The discharge Grenco valve receives the chips from the digester as they complete their impregnation period, and they are blown through a pipe into a cyclone over a live-bottom blow bin. The exhaust and flash steam is removed from the cyclone through a stack leading to the roof.

The digester shell is constructed of 317 ELC stainless steel, with 316 ELC for the mid-feather and drag chain. The digester liquor piping is 3 inch extra heavy 316 ELC stainless with welded connections.

All of the machinery, conveyors, tanks, pumps, agitators, etc., up to and including the vacuum washer are constructed of 316 stainless, and from there on through the entire pulp mill, 304 stainless was used.



To date, after a little more than a year's operation, there has been no sign of corrosion. The only trouble has been in the scraper conveyors where the stainless chain galled badly on the stainless wear strips. These strips were changed to nylon and guide rollers added at the turns in the conveyors and the wear was cut down to practically nothing.

### Operating Conditions

The chips are impregnated for about 15 minutes in the digester at 280 degrees F. and 85 p.s.i. with a liquor composed of sodium sulphite and sodium bisulphite at a concentration of about 56 grams per liter, expressed as sodium sulphite. The ratio of sulphite to bisulphite can be varied at least over a range of from 12 to 1 down to 2 to 1. We have found that we get good results from a 4 to 1 ratio. This gives a pH in the digester of 6.8.

The pulping yield in Forest Products Laboratory trials was about 94 per cent. Mill experience has shown that the yield is at least this high. The actual consumption of the chemical is about 12 per cent, expressed as sodium sulphite on oven dry wood.

A press extracts the chips from about 38 per cent to 60 per cent dry, and takes about 4 horsepower days per ton.

The refining is usually done in two stages with three 800 horsepower refiners. The power consumption in the first stage is about 52 horsepower days per air dry ton, and about 28 in the second stage, making a total of 80. In two stage refining, the freeness after the first stage is about 610, and after the second, 425. A final stage of refining with the pump-through refiner after bleaching consumes about three horsepower days per ton in reducing the freeness to 350.

The unbleached brightness after the second stage of refining varies from about 52 to 59. The brightness after two stages of bleaching is about 69, depending somewhat on the unbleached brightness.

The pulp is unique in its properties. The tearing strength is about 250 per cent that of groundwood, and about 75 per cent that of refined sulphite pulp. The bursting strength is about 40 per cent higher than that of groundwood, and about 75 per cent that of sulphite. The bulk is about 15 per cent greater than that of groundwood. The opacity is about 90 at 69 brightness, or about 93 at 61 brightness. The fiber classification at 350 freeness shows that the pulp is almost as long as refined sulphite pulp, but not as long as refined kraft or kraft-sulphite mixtures.

Mr. Richardson said, "On one paper machine running at 1,150 feet per minute, making coating base stock, the balsam pulp is substituted directly for sulphite pulp to the extent of 20 per cent of the fiber furnish (or about one-half of the chemical pulp). The resulting paper has higher bulk and opacity, about the same burst, and slightly lower tear as compared with the original sheet. The running properties on the paper machines are considerably improved. The drainage is better, and the sheet is stronger on the wet end."

## Using the Upflow Continuous Digester

One of the meeting's most highly interesting papers was given by R. H. Rasch of Hammermill Paper Co. (in collaboration with L. A. Carlsmith of Improved Machinery Corp.), who told of Hammermill's reasons for selecting the new and unique Impco continuous digester and the characteristics of the pulp made in it. This digester has been in commercial operation at the firm's Erie plant for about a year, manufacturing neutral, sulphite semi-chemical pulp from hardwood. The pulp which is bleached and used in bond and other fine paper grades, has shown good uniformity considering the wide variations which occur in the proportion of species within the mixed hardwood chip feed. Uniformity within the digester has been excellent.

When additional digester capacity was needed, the factors of space, steam economy, manpower, automation, and possibly improved uniformity seemed to favor a continuous digester. Of course, a continuous digester would also eliminate the unproductive chip filling time and the long temperature rise and pressure reduction periods of batch operation.

Characteristics of the cooking process that had to be considered according to Mr. Rasch were: unbleached pulp is obtained at a yield of about 63 per cent and a permanganate number of 50-55; chemical consumption is about 20 per cent sodium sulphite on wood; full submergence of chips in liquor is desired throughout the cook.

To satisfy the process requirements and for other reasons an upflow continuous digester was indicated. The problem of propelling the chips up through the digester was solved by a novel "chip lifter", and so the Impco upflow continuous digester was installed.

As soon as the digester was in operation the uniformity of product could be seen from hourly routine control checks of permanganate number of the stock from the blow cyclone. Of greater theoretical interest was the fact that there was uniformity of cooking across a horizontal section of the digester before the chips were scraped-off and mixed together in the blow system. To attain this uniformity it was necessary to modify the rotation pattern of the chip lifter so that completely random compaction insuring uniform density of the chip mass was attained. It was shown that the permanganate numbers of cooked chip samples taken about 24 inches below the top of the chip mass varied only plus or minus 1.0 point.

Mr. Rasch noted that it had not been feasible to undertake a direct mill scale comparison of the pulp produced in the Impco digester with that produced in batch digesters, but Hammermill is satisfied that the pulp qualities are essentially the same. The Impco digester accounts for nearly half of the 200 tons of semi chemical pulp produced per day.

R. H. Rasch

Factors affecting penetration rate have been studied and the first factor recognized to affect penetration was hydrostatic pressure in the bottom of the digester. Tests revealed that with increasing pressures the total amount of semi chemical liquor absorbed by hardwood chips increased and the time required to saturate the wood decreased drastically.

Possibly the most important factor affecting penetration and, in turn,

pulp cleanliness is chip size. Operating experience has led to careful control of chip length and has shown that chips less than ¾ inch in length have consistently given satisfactory results.

Factors controlling the capacity of a continuous digester include: the retention time required for penetration, heating and cooking, the density of chips which can be achieved within the digester, and the volume of the vessel which is provided. Of chief concern is retention time required for completion of the pulping reaction. Hammermill's continuous digester was sized to produce 125 tons per day moisture free bleached pulp with a retention period of 2½ hours at the pulping temperature (about two-thirds the time used in the mill-scale batch digesters). Building space was provided for a second digester of identical design for a total of 250 tons. Mechanical equipment was all sized for the 250 ton per day rate.

At present the single upflow continuous digester has produced up to 208 tons per day of air dry unbleached pulp, corresponding to about 160 tons moisture free bleached pulp.

Laboratory studies have substantiated earlier extrapolations showing that a decrease in yield occurs at the higher production rates, but the magnitude is less than expected. It is believed that the Impco digester can be operated at the 250 ton per day rate.

Actual retention time within the digester has been measured by substituting spruce chips for hardwood for a short period and using fiber analysis to determine when these reached the blow cyclone.

It was previously reported that a solution of hydrochloric acid with inhibitor added (commercial compound) was being used to remove the calcium sulphite scale which formed in the digester heat exchangers. It has since been found that this was highly corrosive and attacked the heat exchanger tubes. Now being used with satisfactory results is a 30 per cent solution of orthophosphoric acid.

# Effect of Storing Slash Pine Chips Outside

Authors C. W. Rothrock, St. Regis Paper Co., W. R. Smith of Southeastern Forest Experiment Station, and R. M. Lindgren of the Forest Products Lab, believe their report to be the first on chip storage in the South based on a carefully planned program and supported by exhaustive data.

Outside storage of wood chips has been a subject of increasing interest to the paper industry in the South. Potential advantages to be gained include better wood measurement, lower handling costs, stabilized chipping and woodyard operation and solution of storage problems arising from increased use of sawmill residues, mixed species and establishment of chip mills at the wood source.

A test pile, containing 106 units of slash pine chips, was constructed in June 1959 at Fargo, Ga., at the St. Regis chip station. An area 100 feet by 50 feet had been graded, covered with six inches of lime rock and topped with 1½ inches of asphalt. Chips from freshly cut trees were placed on the area with a dump truck and the pile was compacted with a D2 Cat. Monthly samples were collected by the U.S. Forest Service for moisture and specific gravity determinations and for identification of decay organisms.

Temperatures within the pile increased as much as 60°F. in the first weeks and remained above ambient levels. A drying cycle in the pile was followed by an increase in moisture to an abnormal level. Dark staining of the chips became evident after two months of storage and was prevalent in about half the chips after five months. Dark stained wood showed a type of fungus attack known as soft rot. Specific gravity losses amounted to one per cent to one and one-half per cent per month, no greater than observed losses on roundwood.

**D. Wetherhorn, general conference chairman and C. W. Rothrock, speaker.**

There was no loss in per cent yield nor change in permanganate number with storage time, but the per cent rejects decreased. Loss in pulp strength (tear) amounted to about five per cent per month, comparable to roundwood.

Conclusions were that outside summer storage of pine wood chips in the South is feasible. Losses in yield and pulp quality are no greater than those observed in roundwood storage under similar conditions.

## Longview's Continuous Hypochlorite Makeup

A review and critical analysis of the bleach liquor systems used at Longview Fibre Co., Longview, Wash. was presented by J. W. Klein, director of technical services for the company and H. S. Fisher of Pennsalt Chemicals Corp.

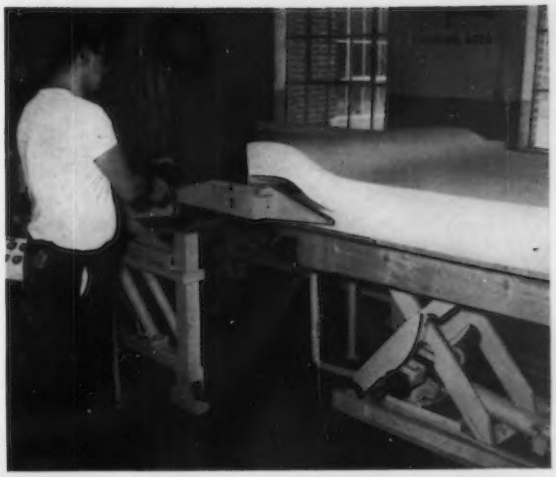
**J. W. Klein**

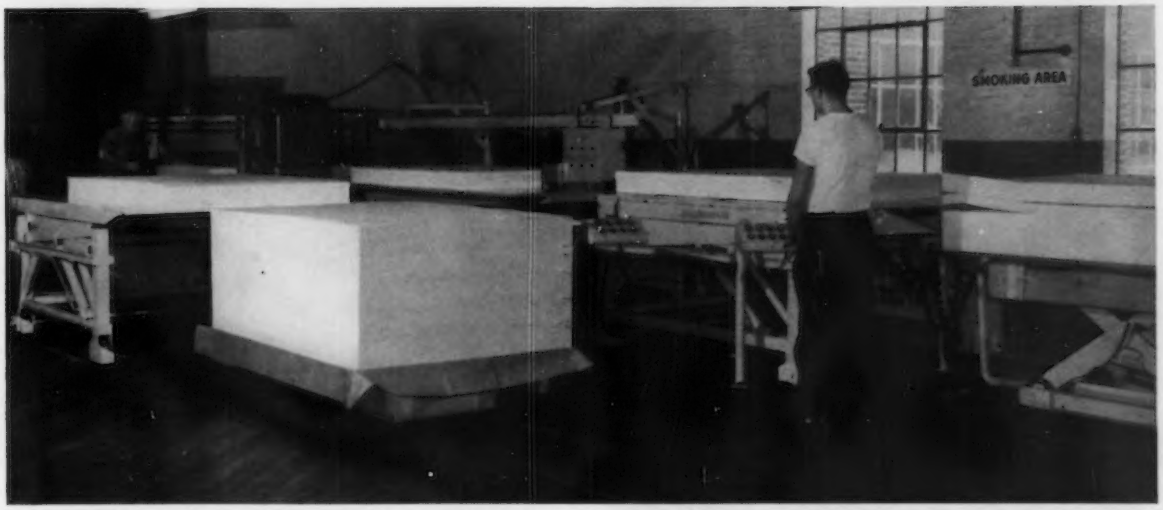
The mill's original bleach plant was a small batch type installation with calcium hypochlorite bleach liquor being prepared in a conventional batch system. As bleached pulp production increased, it became necessary in 1954 to markedly increase calcium hypochlorite production and a modified manually controlled system was installed. This was probably the first continuous bleach liquor installation in a Northwest pulp mill, and was designed for a production of 30 g.p.m. of bleach liquor (30 g.p.l. available chlorine). Actual production went to 60 g.p.m. of bleach liquor (60 g.p.l.) without the odor of chlorine becoming apparent.

Lime slurry strength was controlled by specific gravity measurement in an enlarged section of pipe line. A rapid smooth chlorination reaction was obtained by mixing incoming lime with a circulating stream

*(Continued on page 42)*

# HOW SOUTHWORTH STRADDLE TABLES* *doubled* T.P.H. AT MONADNOCK



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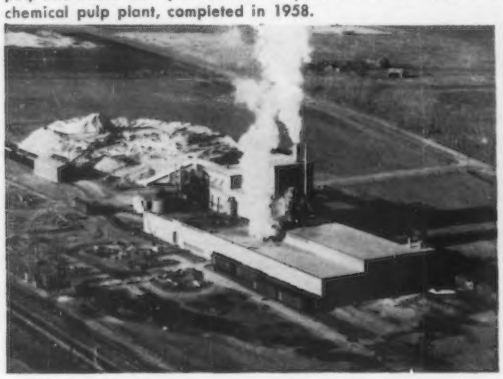
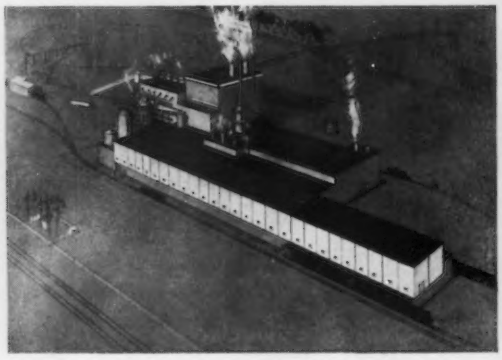
# *Waldorf-Hoerner unfolds spectacular expansion*

**FIRST STEP** in the creation of Montana's first completely integrated pulp and board facility is shown in this photo of Waldorf-Hoerner's chemical pulp plant, completed in 1958.



**ADDITION OF PAPER MILL,** as it will appear when finished, is shown in drawing below. Building is 700 feet long and 70 feet wide.



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# DORR-OLIVER EQUIPMENT

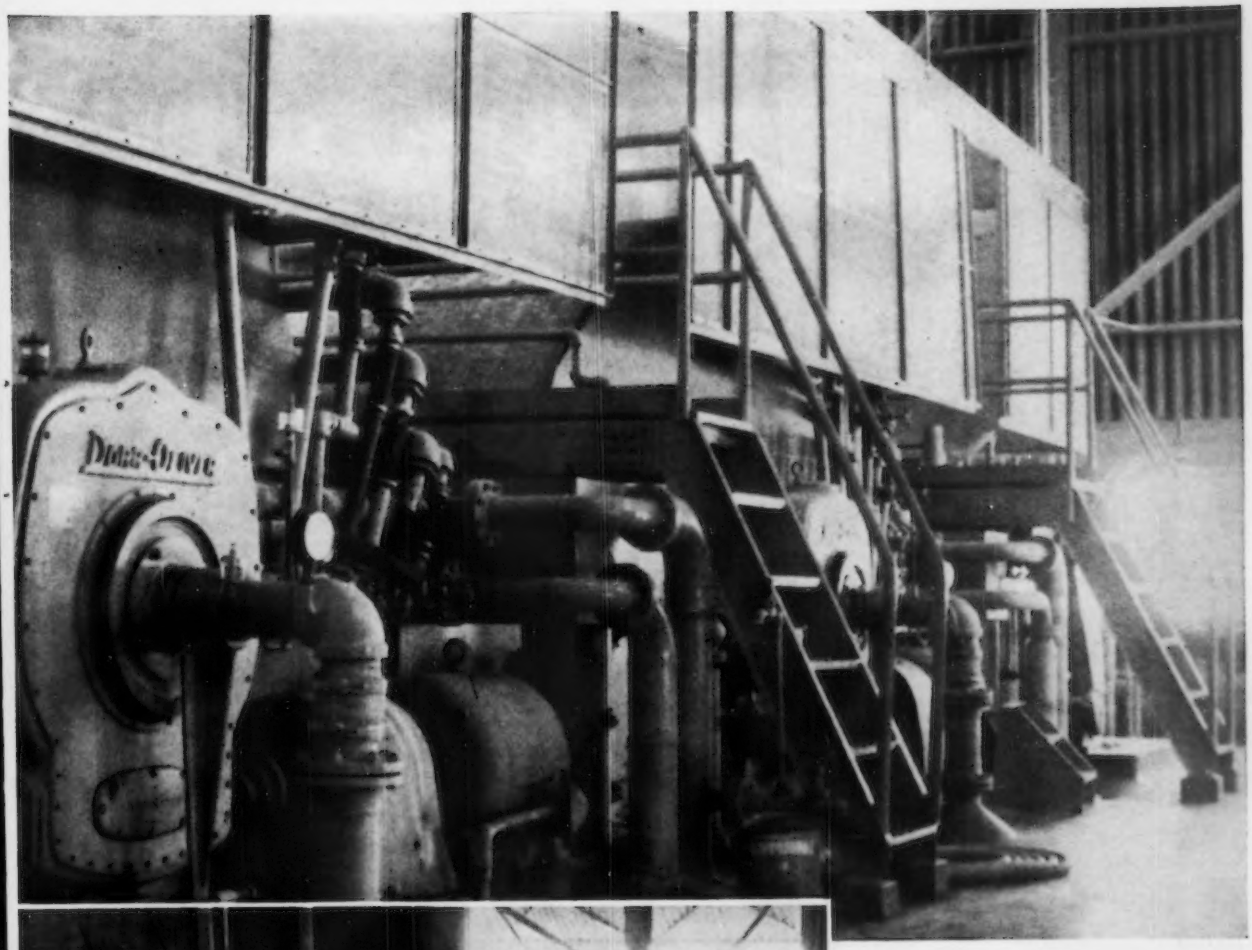
Rapid expansion, development of many innovations in production and the use of proven Dorr-Oliver systems and equipment are features of the spectacular operation of the Waldorf-Hoerner Paper Products Co., at Missoula, Montana.

The chemical pulp mill, producing unbleached kraft pulp, now includes an Oliver Brownstock Washing System with three 11½ ft. dia. x 20 ft. face single drum washers.

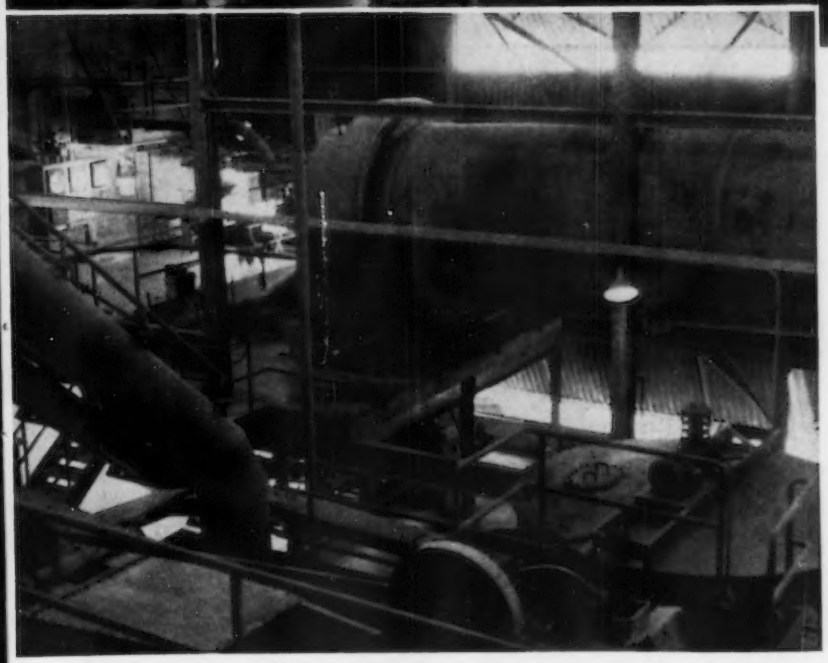
The Dorr Recausticizing System, of unconventional and simplified design, has both primary and secondary slaking, a single compartment Green Liquor Clarifier, unit-type White Liquor Clarifier, two-stage Lime Mud Washer and Dorr-Oliver Hot Lime Crusher. A new Lime Mud Washer is being added which, with minor rearrangement of existing equipment, will provide up to 700 TPD of liquor making capacity.

The Waldorf-Hoerner expansion program will utilize a complete Dorr-Oliver bleach plant and water treatment facilities to provide an integrated pulp and board operation.

For more information on the full range of Dorr-Oliver equipment and services for the pulp and paper industry, write to Dorr-Oliver Incorporated, Stamford, Connecticut.



**OLIVER BROWNSTOCK WASHING SYSTEM** comprises three 11½ ft. dia. x 20 ft. face drum washers, each operating single stage but capable of two-stage operation.



**PART OF THE DORR RECAUSTICIZING SYSTEM** is seen in this photo, looking across the slaker to the lime kiln. System is highly instrumented and incorporates advances in design which simplify operation and improve recovery.

DORR-OLIVER

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of hypochlorite and then the chlorine added through a disperser. Uniformity was excellent and the system performed satisfactorily. However, some problems were experienced with color reversion and maximum brightness obtainable. Part of this was due to use of lime as a buffering agent and a switch was made to caustic soda for buffering the hypochlorite stage.

Later, in 1957, the system was rebuilt being designed for rates up to 70 g.p.m. at available chlorine concentration of 35 g.p.l. Since then the system has been operated without major change or repair supplying the total bleach liquor requirements of the mill for over three years.

Chemical, operating labor, and maintenance costs are less than for the previous batch system. Quality of bleach liquor has been compared to other mills and found equivalent.

## Diagnosing Pulp and Paper Mill Deposits

The problem of pulp and paper mill deposits was the subject of a paper by R. T. Mashburn, P. D. Applegate and H. R. Miller of the Hercules Powder Co. The paper which was presented by Mr. Mashburn dealt with the characterization of deposits (particularly those of kraft pulp mill origin). He said that a rational treatment of this problem consists of diagnosis of the trouble, prescribing a treatment, and removing the cause. He focused attention on the role of deposit analysis in diagnosis.

R. T. Mashburn

"The principal components of pulp mill deposits," said Mr. Mashburn, "include pitch, residual black liquor, pulp mill foam killers, calcium carbonate and alumina." The identification of the major component of the deposit is of greatest significance. Foam killers are so variable in composition that they were not included however. Likely causes of pulp and paper mill deposits were briefly reviewed along with significant differences in composition which might help to indicate these causes and a systematic scheme for the analysis of deposits was presented. This scheme was intended to identify the individual causes of deposits originating in the pulp mill and of those arising in the paper mill.

Infrared absorption data on the extractables from ten kraft pulps, one NSSC pulp, and one cold soda pulp were presented. These curves were compared with the curve for a known mixture comprising resin acids, fatty acids, and neutrals.

# Using the Magnefite Process for Continuous Semi-Chemical Pulping of Aspen

The Magnefite pulping and recovery process was evaluated by Waldorf Paper Products Co. in order to circumvent the "kraft type" odors accompanying most sodium base recovery processes. P. E. Trout, technical director of Waldorf presented the paper. Primary advantages of the process which was suggested to the company by Babcock & Wilcox, is that the magnesium base makes it possible to evaporate efficiently the spent cooking liquor and regenerate the pulping chemicals with minimum atmospheric pollution. The recovery process is also much simpler than the sodium-base recovery processes.

Commercial trials were made using a Sandberg digester equipped with a hydrostatic impregnating tube and four cooking tubes. Both corrugating medium and bleached grades of semi-chemical pulp were prepared from aspen wood. The runability of the corrugating medium grade of pulp was evaluated by actual conversion of the pulp on a fourdrinier machine. The bleaching characteristics of the bleachable grade were evaluated by actual bleaching in a four stage bleach plant (consisting of chlorination, extraction and two stages of sodium hypochlorite).

Although the desired pulping conditions were not realized completely, the data obtained indicated the following:

1. The Magnefite process will give a bleachable grade of semi-chemical pulp having somewhat lower bleached pulp bursting resistance and tearing resistance than the normal bleachable neutral sodium sulphite semichemical process. This is attributed primarily to a greater degree of removal of strength-contributing hemicelluloses by the acid magnesium sulphite process.
2. The Magnefite process will yield a corrugating medium grade of semichemical pulp equivalent to that currently produced with the NSSC process employed by Waldorf.
3. The corrosivity of the acid magnesium sulphite liquor requires the use of acid-resistant materials of construction throughout the liquor-making and pulping facilities.
4. A neutral magnesium sulphite cook was not practical because of low solubility of magnesium monosulphite.

# Evaluation of Certain Laboratory Digesters

Two pieces of pulping equipment recently acquired by The Institute of Paper Chemistry were described by E. F. Thode, J. R. Peckham, and E. J. Daleski. One features the use of a number of ½-liter, stainless steel vessels heated by tumbling end over end in an oil bath. It is referred to as a "multi-unit" digester. The other is a two-vessel system in which cooking liquor is preheated before its introduction to a 14-liter autoclave which holds the chip charge. This latter device is known as the "isothermal" digester.

The authors compared alkaline pulping in this new equipment with pulping in conventional, vertical, sta-

E. F. Thode

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tionary digesters of 44-liter capacity. Evaluation of the multi-unit system with the vertical, stationary digester showed that the small digesters removed both lignin and carbohydrate at a higher rate than did the standard unit, at various values of water ratio and of active alkali.

At the very high water ratio and negligible impregnation time required by the isothermal digester, the small, tumbling digesters removed more lignin and carbohydrate than the specialized isothermal unit. When all three systems were compared by adjusting cooking times using the H factor, both isothermal and vertical stationary digesters were more efficient in delignification than the multi-unit device. The multi-unit showed the lowest yield.

They concluded that although duplication of results among the three digesters is not fully realizable, data so far obtained did not show sufficiently large differences to cast doubt on the general trends of any specific pulping study. The use of such special-purpose devices for efficient laboratory studies in alkaline pulping is therefore considered expedient and technically sound.

## Multistage Sulphite Pulping of Several Species

In a paper presented by N. Sanyer and co-authored by E. L. Keller and S. H. Chidester, all of the Forest Products Laboratory, the pulping of jack pine, balsam fir and oak by several multistage processes were compared.

K. M. Shold, moderator

Three two-stage sulphite processes were used including bisulphite-neutral sulphite, bisulphite-acid sulphite, or neutral sulphite-acid sulphite stages. For the second stage, either liquid sulphur dioxide or a solution of soda ash was injected without removing liquor from the digester. On several occasions the acid second stage was followed by a neutral sulphite third stage. Selected pulps were bleached to 85-90 per cent brightness in three stages using chlorine, caustic soda, and chlorine dioxide for pulps of 20 permanganate number and in five stages including an additional extraction and a chlorine dioxide stage for pulps of 30 permanganate number. Unbleached and bleached pulps were tested for strength and analyzed for sugars after hydrolysis. Comparison was made with kraft pulps from the same chips.

Initial cooking took place at a pH of either 3.5 or 6. Of the two-stage processes, the best strength resulted when the chips were cooked at about pH 3.5 in the first stage, followed by a neutral sulphite stage. The strength of the pulp approached that of kraft under some conditions. The sulphite pulps, of course, were much brighter than kraft and beat much more rapidly. However, the bisulphite-sulphur dioxide sequence gave somewhat greater yields. Cooking at a pH close to six during the initial stage gave six to eight per cent more yield of pulp based on wood because of the increased retention of hemicellulose, but these pulps were weaker than those produced by a bisulphite-neutral sulphite digestion.

In some instances, the shrinkage of pulp on bleaching was greater than anticipated. Pulps of permanganate number 20 bleached readily in a three-stage treatment with chlorine, caustic soda, and chlorine dioxide, but at permanganate number 30 it required a five-stage bleaching sequence including two chlorine dioxide stages.

## Explosive Movie

Other technical reports at the pulping conference included a movie on the interaction of smelt and water, a paper on experiences with the production of chlorine dioxide and a paper on high yield sulphite pulping.

The movie, which was the result of collaborative efforts by C. E. Rogers, H. P. Markant and H. Dluehosh of the Babcock & Wilcox Co., was concerned with an investigation of the physical and chemical reactions involved when a liquid comes into intimate contact with molten smelt. Synthetic smelts of sodium carbonate, sodium sulphate, sodium sulphide, and mixtures of these were produced in a small gas-fired furnace and then brought in contact with water on green liquor. This invariably effected a reaction of explosive proportions whose magnitude depended on the concentration and temperature of the sodium sulphide of the smelt. The chemistry of these explosions involves the generation of hydrogen by dissociation of water. The inference to be drawn from the foregoing is that the primary objective would be to disperse the smelt into small particles as it enters the dissolving tank.

T. C. Payne and B. W. Smith of the International Paper Co. presented a paper on experiences with the production of chlorine dioxide.

T. C. Payne

This was concerned with an increase in capacity and efficiency by the installation of a new six tons per day Mathieson type generator as a primary generator with the old three tons per day generator as a secondary. Results were: good plant operation at high production rates, together with an approximate nine per cent decrease in the sodium chlorate requirement.

High yield sulphite pulping was discussed in a paper by R. K. Strapp of the Sprout Waldron Co. Abatement of air and water pollution was discussed by V. W. Bacon of the Northwest Pulp & Paper Ass'n.

Interest in high yield kraft pulping was evidenced by the large attendance and audience participation at a panel session on that subject. Moderated by Eric S. Rice, St. Regis Paper Co., the panel was comprised of Lloyd F. Goodwin, also of St. Regis; Franklin L. Jones, Container Corp. of America; Bruce P. Ellen, Continental Can Co.; John Henderson, Crown Zellerbach; and John S. Hart, St. Lawrence Corp. Some of the questions that arose and the forthright informative answers that were given by panel members will be covered in next week's issue of PAPER TRADE JOURNAL.

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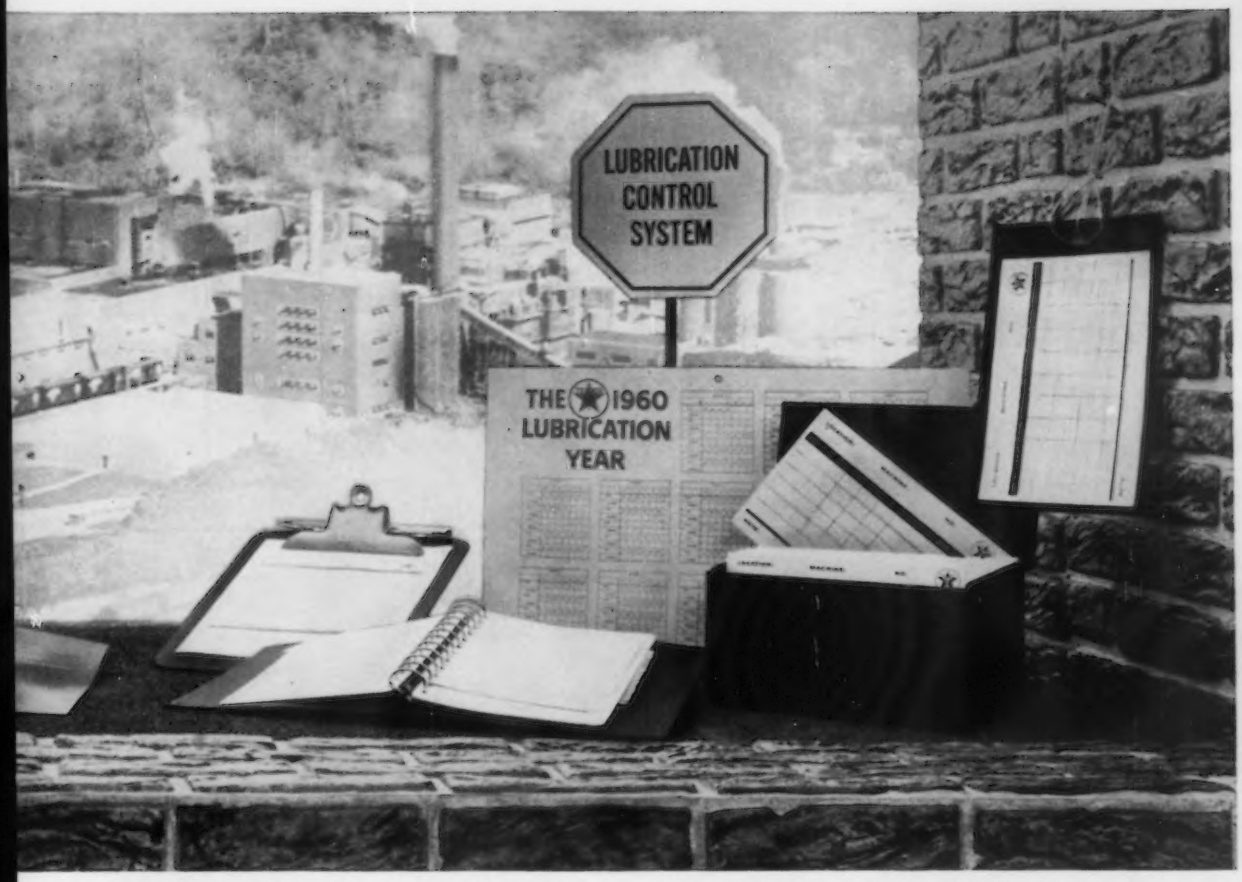


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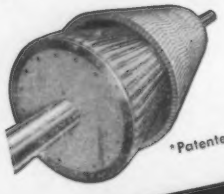

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COMBINED LOCKS PAPER CO. COMBINED LOCKS, WIS. QUALITY PAPER SINCE 1889

Ecusta

THILCO PRODUCTS

E. D. JONES CORP. member BELOIT group PITTSFIELD, MASS.

Jones

PULP MILL EQUIPMENT AND STOCK PREPARATION MACHINERY

# Prices of Fibers

## MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

| | U.S. | Canadian | Swedish | Finnish | Norwegian |
|---|---|---|---|---|---|
| Groundwood | $ 82.50/ 90.00 | $82.50/ 90.00 | §$90.00/ — | §$80.00/ — | §$90.00/ — |
| Bleached Gw'd | $ 97.50/100.00 | $97.50/100.00 | | | |
| Kraft, Blchd. | ‡152.00/160.00 | | | | §157.50/ — |
| Kraft, Blchd. Hdwd. | 152.00/ — | | 140.00/ — | | |
| Kraft, Semi-bleached. | 140.00/145.00 | | | | |
| Kraft, Unbl. | 117.50/125.00 | 125.00/130.00 | †125.00/130.00 | 125.00/ — | |
| Sulphite, Blchd. | ‡150.00/155.00 | ‡150.00/155.00 | •155.00/ — | •155.00/ — | 155.00/ — |
| Sulphite, Bl. Hdwd. | 150.00/ — | | | | |
| Sulphite, Unblchd. | 135.00/ — | 135.00/ — | †135.00/ — | •135.00/ — | |
| Sulphite, Unb'l. Gl'sn | | 140.00/ — | †134.00/ — | | |
| Soda, Blchd. | 147.00/150.00 | 150.00/ — | | | |

§ On Dock Atlantic Ports. • Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

## COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED AUGUST 23

| | Atlanta | Memphis | Dallas | Los Angeles |
|---|---|---|---|---|
| Grade 1 | n.a. | n.a. | n.a. | n.a. |
| 2 | $8.00/7.75 | n.a. | n.a. | — / — |
| 3 | 7.75/7.00 | $7.75/7.50 | $7.50/7.00 | 8.50/7.75 |
| 4 | 7.00/6.25 | 7.00/6.25 | 6.50/6.25 | 7.25/ — |
| 5 | 6.25/5.75 | 6.00/5.75 | 6.00/5.50 | 7.00/6.75 |
| 6 | 5.75/4.75 | 5.25/5.00 | 5.25/5.00 | 6.50/4.50 |
| 7 | 4.75/4.00 | 4.50/4.00 | 4.75/4.00 | 4.25/4.00 |

## WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

| | New York Aug. 29 | Boston Aug. 29 | Chicago Sept. | Los Angeles Sept. |
|---|---|---|---|---|
| No. 1 Mixed Paper | $ 7.00/ 9.00 | 9.00/ 11.00 | 6.00/ — | 11.00/ 13.00 |
| No. 1 News | 12.00/ 13.00 | 10.00/ 11.00 | 13.00/ — | 12.00/ — |
| Overissue News (Lg. size) | 11.00/ 13.00 | 9.00/ 11.00 | 18.00/ — | 13.00/ 19.00 |
| Mill Wrappers | 19.00/ 22.00 | 13.00/ 15.00 | 9.00/ — | 12.00/ 14.00 |
| Old Corrugated Containers | 19.00/ 20.00 | 19.50/ 20.00 | 20.00/ — | 21.00/ — |
| Super Resorted Kraft Paper | 35.00/ 40.00 | — / — | 30.00/ — | 55.00/ — |
| New Double Kr. Ld. Corr. Cuts | 32.50/ 35.00 | 35.00/ — | 35.00/ — | 32.50/ — |
| (Semi-chem. medium) | 47.50/ — | 47.50/ — | 45.00/ — | — / — |
| New 100% Kraft Corr. Cuts | 40.00/ 42.50 | — / — | 57.50/ — | — / — |
| New Br. Kraft, Env. Cuts | 70.00/ 75.00 | 70.00/ 75.00 | 52.50/ — | 60.00/ — |
| New Br. Kr. Bag Waste Prntd. | 55.00/ 60.00 | 55.00/ 60.00 | 52.50/ — | 55.00/ — |
| New Br. Kr. Bag Waste Unprintd. | 60.00/ 65.00 | 65.00/ 75.00 | 60.00/ — | 60.00/ — |
| No. 1 Groundwood Shvs. | 25.00/ 30.00 | 25.00/ 30.00 | 15.00/ — | 22.50/ 35.00 |
| White Newsblanks | 47.50/ 52.50 | 47.50/ 52.50 | 30.00/ — | 55.00/ — |
| No. 1 Soft White Shvs. | 60.00/ 65.00 | 57.50/ 60.00 | 60.00/ — | 70.00/ 75.00 |
| Super Soft White Shvs. | 65.00/ 75.00 | 75.00/ 85.00 | 70.00/ — | — / — |
| Hd. White Shvs. | 85.00/ 90.00 | 90.00/100.00 | 85.00/ — | 85.00/ 95.00 |
| Hd. White nv. Cuts | 100.00/105.00 | 105.00/110.00 | 90.00/ — | 110.00/113.00 |
| Col. Tab. Cards | 42.50/ 45.00 | 42.50/ 45.00 | 45.00/ — | 35.00/ 40.00 |
| Manila Tab. Cards | 62.50/ 65.00 | 62.50/ 65.00 | 65.00/ — | 65.00/ — |
| No. 1 Col. Ledger | 35.00/ 40.00 | 35.00/ 40.00 | 40.00/ — | 27.00/ 29.50 |
| White Ledger | 48.50/ 52.50 | 50.00/ 55.00 | 50.00/ — | 50.00/ 55.00 |
| Mixed Book & Mag.† | — / — | — / — | 12.50/ — | — / — |
| No. 1 Books‡ | 16.50/ 19.00 | 14.50/ 16.50 | 27.50/ — | 13.50/ 14.00 |

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

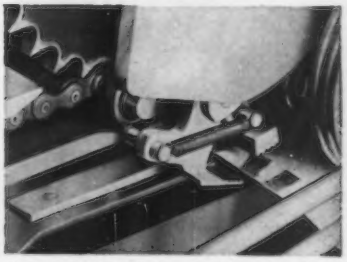
# Multiwall Converters PREFER RAWE BOTTOMERS

*For*
**SPEED!**
**SIMPLICITY!**
**QUICK CHANGEOVER!**
**SMOOTH OPERATION!**

*Suction and opening device.*

The many installations in this country are proving the superior merits of the Rawe Bottomer for both flush-cut and stepped-end multiwall tubes.

The Rawe Bottomer will bottom one to six-ply tubes with valve inserts or open mouth. Multiwall sacks, made on the Rawe Bottomer are used for cement, lime, plaster, fertilizer, chemicals, etc., from such varied materials as kraft, light crepe, asphalt, foil lined, etc.



*Gripper just before taking over the paper tube.*

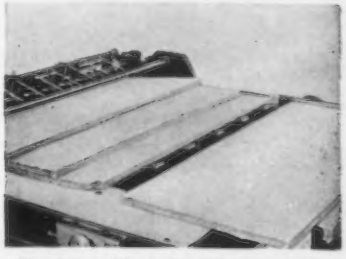
## SPECIAL FEATURES

- Semi-automatic feeder table
- Re-circulating adhesive
- Central lubrication
- Stepless vari-speed motor
- Tube length adjustment is electrically controlled

*Partial List of Rawe Installations:*

Bemis Bro. Bag Co.
Continental Can Co.
Owens-Illinois
Union Bag & Paper Corp.
Universal Paper Bag Co.
West Virginia Pulp and Paper Co.

*Several of above have two or more RAWE Bottomers.*



*Feeder table fed with tube piles.*

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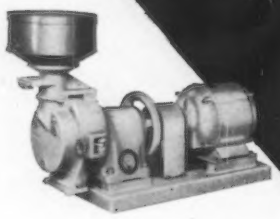
THE ELECTRONIC BACKGAUGE CONTROL
FOR TRIMMERS
INCREASES PRODUCTION AND ACCURACY
CONTACT
SMITH & WINCHESTER
SOUTH WINDHAM, CONN.
SPECIALISTS IN SHEETING & CUTTING EQUIPMENT

VERSATILE LABORATORY MILL



Here's a disc mill for your laboratory... to do miscellaneous grinding jobs of either wet or dry material; to refine cooked chips and knotter or screen rejects; to fluff dry pulp samples.
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# PJT NEWS OF SUPPLIERS

J. E. Wilbur

D. G. Casagrande

**Huyck Felt Co.,** Division of Huyck Corp., Rensselaer, N. Y., announced the promotion of John E. Wilbur to assistant manager of Field Service Engineering. Mr. Wilbur previously served as a Huyck sales and field service engineer. During his more than ten-year association with the paper industry, he has been employed by S. D. Warren Co. and Carton de Columbia, a subsidiary of the Container Corp. of America.

John G. Casagrande has been named to succeed Mr. Wilbur as field service engineer for portions of N. J., Penn., Md., Del. and N. C. Mr. Casagrande is a graduate of the Pulp and Paper School at Syracuse University. Prior to joining Huyck he was employed by Sveen-Pedersen Co. and Personal Products Co., Milltown, N. J.

**Dewey and Almy Chemical Division,** W. R. Grace & Co., announces that Dr. Harold M. Sonnichsen has joined the organization as director of fiber and saturant research in Dewey and Almy's Polyfibron Division. Dr. Sonnichsen was formerly a vice president and research director of the Permacel Division, Johnson and Johnson. He served for 16 years with Permacel and is a recognized authority in the field of impregnated fibers. Previous to his association with Permacel, he spent five years with the Electrochemicals Department of E. I. du Pont de Nemours & Co., Inc.

**Walworth Co.** has announced the appointment of Gustav A. Hoffman as vice-president, sales. Mr. Hoffman will be returning to the company he served for 27 years. He left in the spring of 1959, while holding the position of assistant vice-president in charge of Metropolitan Division Sales.

Mr. Hoffman joined the Walworth Co. in 1932. He entered company sales four years later and was appointed sales manager of the Philadelphia area in 1940. He returned to Walworth Co. in 1946 after four years of service in the United States Navy. He subsequently managed the Kansas City and Detroit sales areas prior to being appointed manager of the Metropolitan Division in 1955.

**Waldron-Hartig Div.,** Midland Ross Corp. Charles A. Dickhaut, designer and sales engineer at Waldron-Hartig retired September 1, 1960 after 34 years of service with Waldron, it was announced by B. C. Iannotta, marketing coordinator for Waldron.

Mr. Dickhaut is best known for his contributions in the "Coating Methods" and "Web Alignment"

always in the market
baltimore
chicago
detroit
jersey city
kalamazoo
los angeles
oakland
philadelphia
PIONEER PAPER STOCK COMPANY
graders and packers of waste paper

For every
wet-strength problem . . .

a UFORMITE resin
to solve it

Need wet strength? . . . You'll find that one of the Rohm & Haas UFORMITE resins will suit your processing requirements and the end-use application—be it toweling, napkins, bag paper, butchers' wrap, paperboard, or a specialty item. Note the advantages exhibited by all three resins: 1) excellent storage stability, 2) immunity to sulfate ions, 3) ease of handling (no acid pretreatment or aging required), 4) easy broke recovery.

The properties of the individual resins are these: UFORMITE 700—high off-the-machine wet strength without attendant broke recovery problems. UFORMITE 711—efficient all-round performance at moderate cost. UFORMITE 467—maximum economy in unbleached grades of paper.

Write for our 24-page booklet, UFORMITE *Resins for Wet Strength Paper.*

UFORMITE *is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.*

*Chemicals for Industry*

**ROHM & HAAS COMPANY**

**THE RESINOUS PRODUCTS DIVISION**

**Washington Square, Philadelphia 5, Pa.**

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C. A. Dickhaut

G. Velez

area of the "Web Processing" field. He is the holder of 17 patents in this area.

**Cameron Machine Co.**, Dover, N. J., has announced the formation of subsidiary companies to further the international marketing of its equipment.

Cameron Machine International AG, a wholly owned subsidiary of Cameron Machine Co., will be the parent company for other subsidiary companies including Cameron Maquinas Ltda., Sao Paulo, Brazil and Cameron Europe S.A., Paris, France.

Founded in Zug, Switzerland, the purpose of Cameron Machine Internt'l will be to serve as a sales and service company, in all areas not covered directly by other Cameron companies, for the Cameron, Clark-Aiken and Tidland Machine's equipment. It will also extend rights through licensing agreements for manufacture outside the United States and Canada.

Guillermo Velez, associated with Cameron's export sales for over ten years has been appointed sales manager for the Swiss company. Mr. Velez will continue to operate from Cameron's, Dover, N. P. office.

Cameron Europe S.A., 5 Rue de Prony, Paris, France, was established for sales and service to countries within the European Common Market. The company will be headed by Robert Mace as general manager and Michel Sirvin will be the sales manager. Both men have had long associations with the paper industry in France. In addition to Cameron slitting and roll winding machinery, the French company will handle the Clark-Aiken's complete line of cutter-layboy and related finishing room handling equipment and Tidland pneumatic shafts.

Cameron Maquinas Ltda., Sao Paulo, Brazil, now in operation, is headed by Paul Chessare formerly a divisional sales manager of Cameron Machine Co. The Brazilian company is now producing Cameron's small converting machines and has plans to manufacture Clark-Aiken cutter-layboys as well as Tidland pneumatic shafts.

**Gates Rubber Co.**, Denver, Colo., has named Dagobert F. Pfeiffer as sales manager for Austria, Switzerland and the European Common Market.

A native of Zug, Switzerland, Mr. Pfeiffer will make his European headquarters there. He has been manager of Gates Overseas, South American division, with headquarters in Panama, for the past four years. He joined Gates in 1952 as a sales correspondent in the export sales division, was promoted to senior market specialist and later to sales manager of Eastern Hemisphere.

"I'm sorry Ts'ai-Lum but your aptitude test reveals you'd be entirely unfit in the paper industry."

**THERE'S A CERTAIN AIR ABOUT AMERICAN SF PRODUCTS**

Perhaps the greatest project we've ever done was to design and install the ventilation and air circulation system in Sweden's vast underground military and naval installations, and in an entire underground aircraft factory which is part of these installations.

The complex requirements of the aircraft plant called for a system which would maintain livable temperatures in the many different sections despite widely varying conditions; circulate inside air as well as provide fresh surface air, and cool, dry or heat it as conditions dictate; operate, even under an enemy gas attack!

To meet the first challenge, the unit was divided into twenty subsections, each of which controls temperatures so that variance in any one section is only about 1° C and relative humidity is kept at 30-40%. Fans, condensers and evaporators, etc. take care of circulating, cooling, drying and heating inside air, and in addition, the system can draw up to 4724 cu. ft. per person per hour of fresh outside air. In the event of a gas attack, the system takes in only sufficient outside air to compensate for oxygen consumed, and this air is purified by gas filters at the point of admission.

★
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SF Products Canada Ltd.
940 Cote de Liesse Road, Montreal

LODDING
Engineering Corporation
AUBURN, MASSACHUSETTS

- DOCTORS—BLADES
- HYDRAULIC OSCILLATION
- Jet Air FUZZ REMOVERS
- No Spit STEAM SHOWERS
- Self Cleaning SHOWERS
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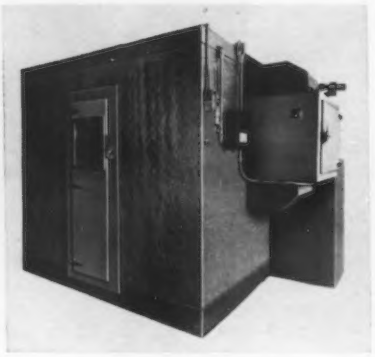
# PJT NEW EQUIPMENT & SUPPLIES



## Controlled Temperature and Humidity Lab. Room Units

Testing Machines, Inc., announces the Model TMI-100-1 "Uni-Lab" which is capable of producing and maintaining controlled temperature and humidity (within +70°F. to +80°F. dry bulb temperature, and 40 to 75 per cent relative humidity). Although these temperature and humidity ranges are standard, the "Uni-Lab" can also be made available with relative humidity range to 90 per cent and dry bulb temperature up to 120°F. The room is fully insulated, contains the necessary air movers, cooling and heating coils, humidifying apparatus and associated electrical and control equipment.

This equipment meets or exceeds present ASTM and TAPPI Standards for conditioning paper, board, and similar products. "Uni-Labs" are available in various dimensions although the standard interior is 6 wide by 6 deep by 7 feet high. Approximate exterior is 7 wide by 7 deep by 9 feet high, plus approximately 3 by 4 foot space for two pen recorder and conditioning equipment.

Larger interiors of 6 by 9 feet and 6 by 12 feet are also available. For further details write to Testing Machines, Inc., 72 Jericho Turnpike, Mineola, N. Y.

## Tensioning Tool Designed For Rayon Cord Strapping

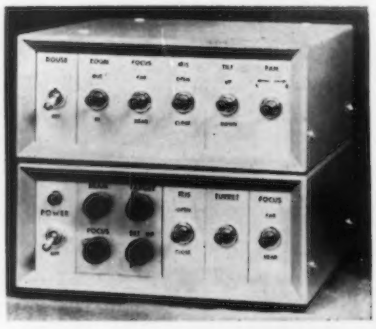
Designed to handle all sizes of the new "Avistrap" Cord Strapping, a prototype model of the Avistrap mecanized pneumatic tensioner has been announced by the Industrial Packaging Department of American Viscose Corp., Philadelphia. Avistrap is the high-tenacity rayon cord strapping introduced less than 10 weeks ago.

This semi-automatic tool, which will handle all widths from ¼ to ¾ inch, is one of two basic tools used in strapping Avistrap. Claims made for the tensioner are that it will enable shippers to speed operations; decrease fatigue for shipping personnel; permit pre-determined, rather than "guesswork," tension; and generally help to improve shipping efficiency.

## Transistor Remote Control For Closed Circuit TV

A closed circuit remote control box with an all-transistorized, regulated power supply has been developed by General Electric Co. for its CCTV camera. Voltage to the camera and its internal accessories is automatically constant regardless of cable length up to 1,500 feet.

Designated the PX-55-A, the remote control models include the basic box containing the 24-volt d.c. power supply and providing space for five additional single-unit accessory panels. Weighing 10 pounds, this box is eight inches wide, 3.62 inches high and nine inches deep. A second box of identical size and designed to bolt on top of the first box for desk mounting, provides space for six additional single-unit accessory panels. In both cases the desk-model covers can be omitted and the control panels can be mounted in a 19-inch equipment rack. Conducting cooling of the transistors is provided; therefore, no blowers are used. No warmup is required in the PX-55-A's operation.



# Figures of the Week

**PAPER PRODUCTION RATIO REPORT**—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

| | | | | | |
|---|---|---|---|---|---|
| | July 23 | July 30 | Aug. 6 | Aug. 13 | Aug. 20 |
| 1960 | 90.9 | 91.5 | 88.5r | 91.2r | 92.7 |
| | July 25 | Aug. 1 | Aug. 8 | Aug. 15 | Aug. 22 |
| 1959 | 94.9 | 94.3 | 95.7 | 96.4 | 96.7 |

r Revised.

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 96.5 | 97.7 | 98.0 | 96.9 | 97.8 | 96.3‡ | 81.1‡ | — | — | — | — | — | — |
| 1959 | 87.8 | 90.5 | 93.2 | 94.4 | 95.5 | 95.6 | 84.5 | 96.0 | 92.4 | 97.4 | 96.2 | 86.6 | 94.0 |

‡ Preliminary

*All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.*

COMPARATIVE YEARLY SUMMARIES

| | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|---|---|---|---|---|---|---|---|---|
| Year to Date | 94.2 | 91.6 | 95.7 | 98.9 | 91.8 | 86.3 | 91.8 | 94.7 |
| Year Average | 92.3 | 91.6 | 96.2 | 97.9 | 90.4 | 87.0 | 94.0 | — |

**PAPERBOARD OPERATING RATIOS†**—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

| | | | | | |
|---|---|---|---|---|---|
| | July 23 | July 30 | Aug. 6 | Aug. 13 | Aug. 20 |
| 1960 | 91 | 94 | 94 | 92 | 92 |
| | July 25 | Aug. 1 | Aug. 8 | Aug. 15 | Aug. 22 |
| 1959 | 94 | 98 | 98 | 96 | 95 |

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 92 | 95 | 94 | 93 | 94 | 92 | 77 | — | — | — | — | — | — |
| 1959 | 89 | 94 | 95 | 94 | 96 | 96 | 83 | 97 | 92 | 96 | 94 | 80 | 92 |

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

**SUMMARY OF PAPERBOARD STATISTICS**—National Paperboard Assn. Figures

| ITEM | THIS WEEK ENDING Aug. 20, 1960 | LAST WEEK ENDING Aug. 13, 1960 | CUMULATIVE TO DATE Jan. 1 to August 20, 1960, incl. |
|---|---|---|---|
| % Activity | 92% | 92% | 91% |
| **Total** | 314,607 | 314,180 | 10,181,272 |
| **Containerboard—Domestic Use.** | 169,897 | 158,611 | 5,231,226 |
| Liner | 115,727 | 103,652 | 3,492,194 |
| Corrugating Material | 49,308 | 49,731 | 1,568,413 |
| Chip & Filler Board | 4,862 | 5,228 | 170,619 |
| **Boxboard—Domestic Use** | 97,164 | 97,575 | 3,169,067 |
| Folding | 61,017 | 57,022 | 1,892,953 |
| Set-Up | 10,925 | 11,933 | 360,921 |
| Special Food Board | 25,222 | 28,620 | 915,193 |
| **Other Paperboard** | 47,546 | 57,994 | 1,780,979 |
| Containerboard Type | 22,166 | 30,071 | 855,153 |
| Boxboard Type | 25,380 | 27,923 | 925,826 |
| **Total Orders** | | | |
| Received | 283,315 | 303,937 | |
| Unfilled End of Week | 426,145 | 461,915 | |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Cady Exact 10/1000ths Inch Micrometer

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High Speed Disc Refiner
THE BAHR BROTHERS MFG. CO.
MARION, INDIANA, U. S. A.

GET THE SCOOP ON SCOOPS

If you have a dryer drainage problem, don't do anything about it until you see the movie—

"Condensate Behavior in Rotary Dryers"

This 15 minute sound color film shows what goes on inside a dryer at a wide range of speeds . . . shows why conventional syphons lose efficiency at higher speeds . . . shows how to get condensate out at any speed. For a showing, contact your Armstrong Representative or write direct.

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ARMSTRONG MACHINE WORKS
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Pulp Paper and Board Mill Maintenance

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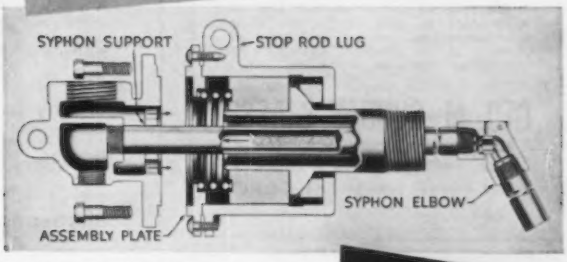


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Box 60-177 care Paper Trade Journal.
S-12

### Help Wanted

### Help Wanted

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***Send resume in complete confidence to Box 60-179 care of Paper Trade Journal.***

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**Help Wanted advertisements continued on page 60**

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1—108" B-C 5 roll
1—104" B-C 8 roll
1—115" B-C 7 roll
1—124" Downingtown 5 roll

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1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

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3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Trim Fourdrinier paper machine
1—B-C 100" 2 cyl. Board Machine Complete
1—M & W 72" Trim Yankee Fourdrinier
1—Rice Barton 84" Fourdrinier

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1— 48" face x 42" dia
2— 63" face x 36" dia w/rubber couches
1— 78" face x 40" dia
1—104" face x 36" dia
1—107" face x 48" dia; A-F Brng
8—124" face x 36" dia w/rubber couches
1—131" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

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Downingtown single cylinder; 99" face x 48" dia; 18" dia couch

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24" Dia.:
39— 46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face
2— 46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
1— 74" face w/gears & bearings
3— 75" face w/gears & bearings
5— 75" face
17— 76" face; complete section
9— 76" face w/gears & bearings
1— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
30— 84" face; complete section
2— 88" face
18— 90" face; complete section
9— 92" face; complete section
1— 96" face
1—138" face
10—160" face

42" Dia.:
23— 76" face; complete section
46— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia.:
57— 46" face; chrome plated
12— 82" face; complete section
5— 84" face
24—106" face
10—106" face w/gears & bearings
12—110" face w/gears & bearings
4—123" face w/gears, frames & bearings
1—128" face

**DRIVES ENCLOSED RIGHT ANGLE**
1—Beloit 65 h.p. Ratio 2.88 to 1
3—Jones 65 h.p. Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
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1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1

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1— 80" Hudson Sharp; A-F Brng

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2—139" face x 24" dia; A-F Brng

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1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

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2—#1 Claffin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new
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1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

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Distributor—Stainless Steel
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1— 6½" dia x 115" face
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71 Miscellaneous sizes. Drawings available
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1— 65" Kidder w/elec. eye and layboy
1— 74" Hamblet w/motor
1— 76" Beloit Duplex
1— 82" Hamblet
1— 85" Hamblet duplex w/layboy
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A-F Brng

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17¾" Maximum Rewind Diameter
1— 42" Cameron Type 26-2A
24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Model 6
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5
30" Maximum Rewind Diameter
1— 52" Cameron Type 10
1— 60" Langston Shear Cut
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F
36" Maximum Rewind Diameter
1— 62" Cameron Model 6
1— 70" Variable Speed Center Winder
1— 72" Cameron Model 8-10
42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
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48" Maximum Rewind Diameter
1— 86" M & W Four Drum Shear Cut
1—110" Langston—Shear Cut
1—152" Langston Shear Cut
60" Maximum Rewind Diameter
1—112" Cameron Type 18
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1—120" Langston

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2— 63" Norwood 8 roll; A-F Brng
1— 92" Norwood 7 roll w/drive

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S-5

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S-26

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Send résumé to Personnel Department.

**St. Croix Paper Company**
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S-19

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Bigelow 3-3720 S-5

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# FOR SALE

240" x 80 ft. Pusey & Jones removable Fourdrinier with Slice, perforated roll, top press rolls 32 x 240", two Beloit rubber covered suction press rolls 35 x 235", 9 roll calender, reel, unwind stand and winder. Equipment last operated at 1200 fpm on Kraft. Dryer frame also would be available.

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S-12

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